ARUBA WIRELESS AND CLEARPASS 6 INTEGRATION GUIDE

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Audience

This Aruba Wireless and ClearPass 6 Integration Guideis intended for system administrators and people who are integrating Aruba Networks Wireless Hardware with ClearPass 6.0.1.

Typographic Conventions

The following conventions are used throughout this manual to emphasize important concepts.

Type Style	Description
Italics	Used to emphasize important items and for the titles of books.
Boldface	Used to highlight navigation in procedures and to emphasize command names and parameter options when mentioned in text.
`Sample template code or HTML text`	Code samples are shown in a fixed-width font.
<angle brackets>	When used in examples or command syntax, text within angle brackets represents items you should replace with information appropriate to your specific situation. For example: ping <ipaddr> In this example, you would type “ping” at the system prompt exactly as shown, followed by the IP address of the system to which ICMP echo packets are to be sent. Do not type the angle brackets.

Contacting Support

Main Site	arubanetworks.com
Support Site	support.arubanetworks.com
Airheads Social Forums and Knowledge Base and Knowledge Base	community.arubanetworks.com
North American Telephone	1-800-943-4526 (Toll Free) 1-408-754-1200
International Telephones	http://www.arubanetworks.com/support-services/aruba-support-program/contact-support/
Software Licensing Site	https://licensing.arubanetworks.com/
End of Support information	www.arubanetworks.com/support-services/end-of-life-products/end-of-life-policy/
Wireless Security Incident Response Team (WSIRT)	http://www.arubanetworks.com/support-services/security-bulletins/

Support Email Addresses

Americas and APAC	support@arubanetworks.com
EMEA	emea_support@arubanetworks.com
WSIRT Email Please email details of any security problem found in an Aruba product.	wsirt@arubanetworks.com

1. Aruba Wireless and ClearPass 6.0.1 Integration Guide

Purpose

The purpose of this document is to provide instructions for integrating Aruba Networks Wireless Hardware with ClearPass 6.0.1. This will include basic topics for 802.1x, RADIUS, and Guest integration in an environment using an Aruba Networks WLAN Solution.

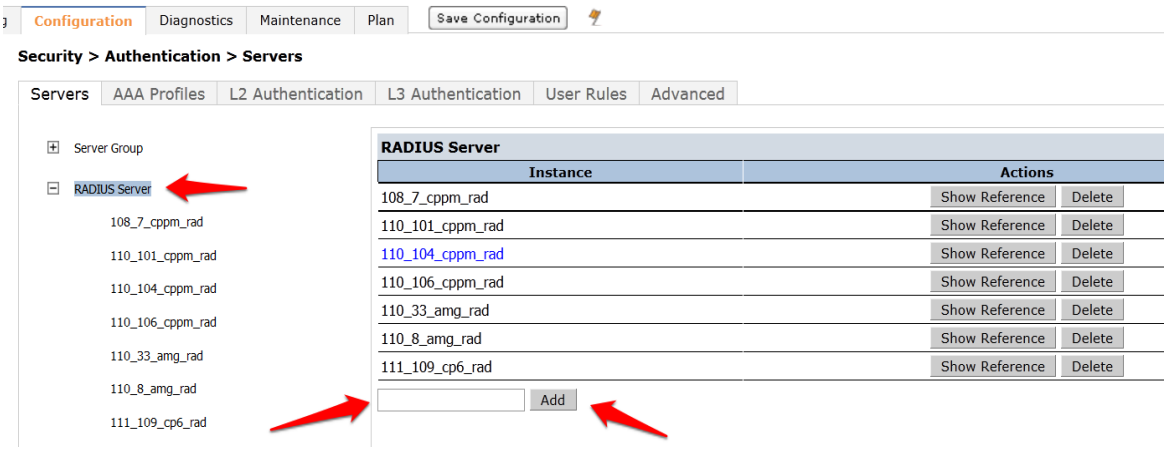
Assumptions

1. Aruba Networks wireless controller is setup and running the latest code.
2. At least one access point is provisioned on the controller for testing.
3. 802.1x SSID is already configured.
4. Guest SSID with Captive Portal is already configured.
5. DHCP and DNS are appropriately configured.
6. ClearPass 6.0.1 server (VM or Physical Appliance) initial setup is complete. This includes network settings, time and date, and system name.
7. Aruba Wireless controller can communicate with ClearPass 6.0.1.
8. The Guest SSID VLAN can communicate with ClearPass 6.0.1.
9. All systems are appropriately licensed.
10. Only one interface is configured on ClearPass.

Step 1: AOS Controller Configuration

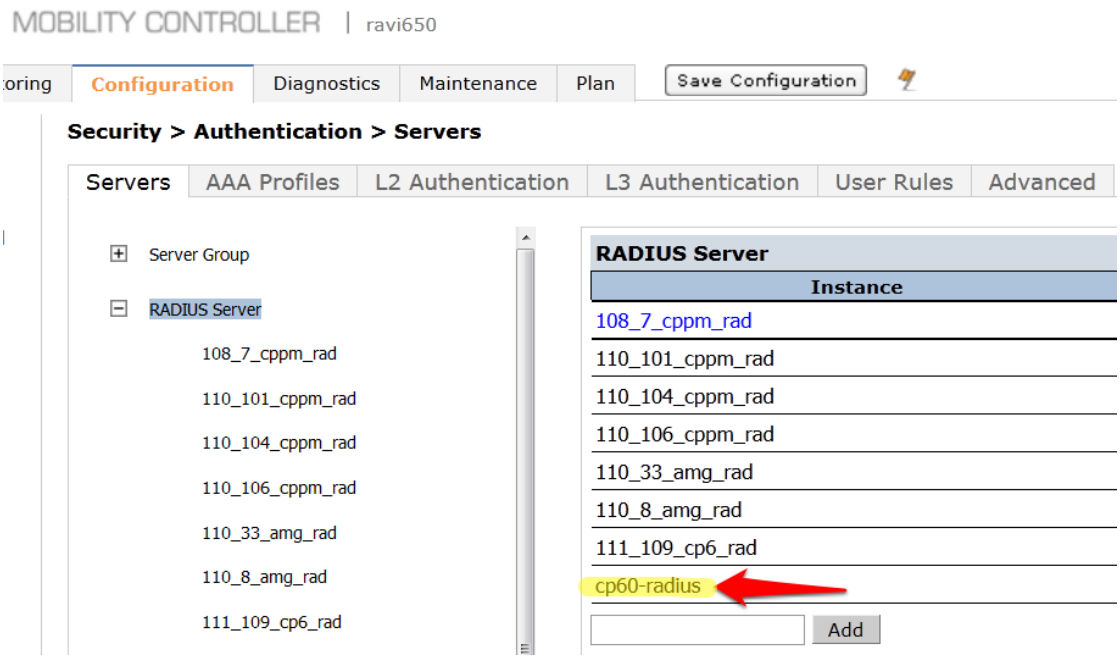
Login to the controller GUI as an admin user. Navigate to **Configuration->Security->Authentication->Servers tab**. Click on **RADIUS Server** and create a new RADIUS server by entering the new RADIUS server reference name in the empty Add box and clicking **Add**.

Figure 1 Adding a RADIUS Server



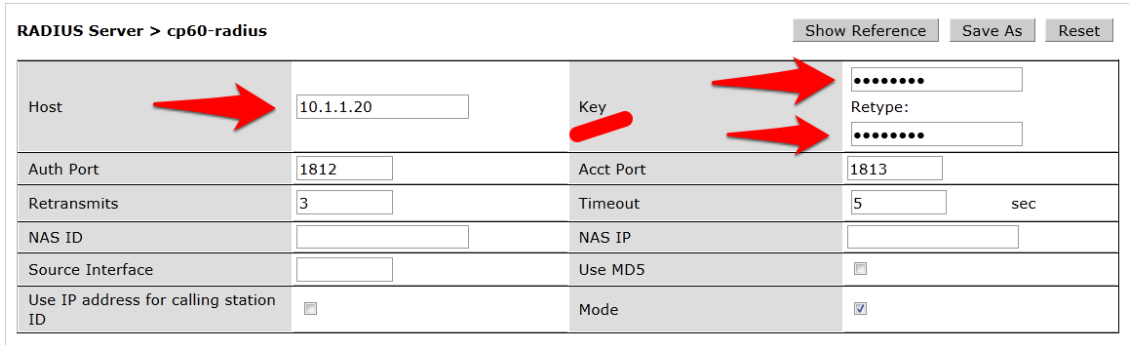
Click on the new server name that shows up in the RADIUS Server list on that page:

Figure 2 RADIUS Server list



Enter the IP address for ClearPass in the **Host** field. Enter <aruba123> for the **key**. Click **Apply** at the bottom of the page to save these configuration settings.

Figure 3 RADIUS server IP and Key entry

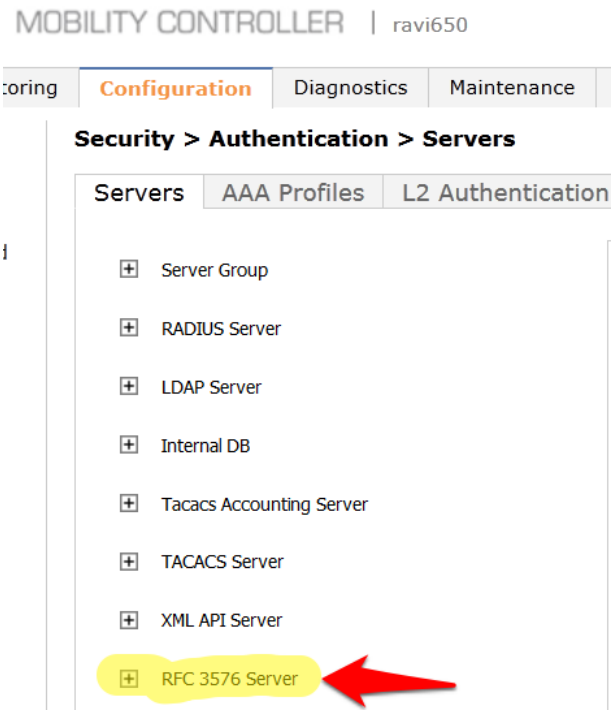


Step 2: Adding a RFC 3576 Server

The next step is to add an RFC 3576 server entry for ClearPass.

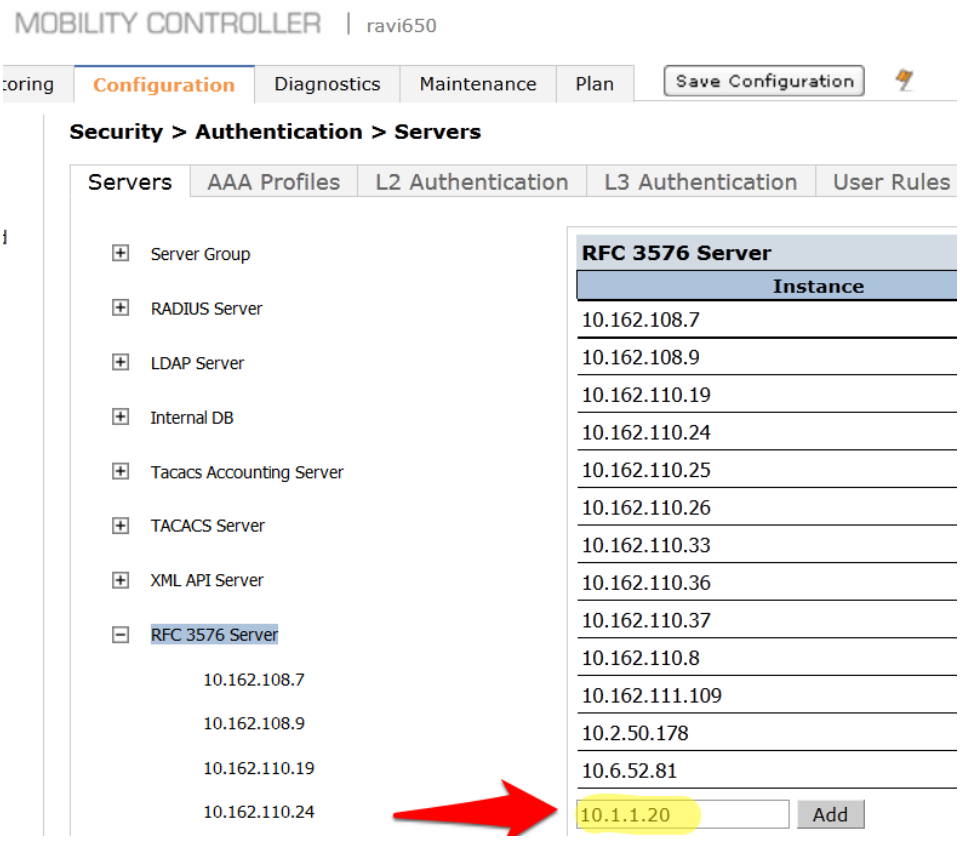
Click on **RFC 3576 Server.**

Figure 4 RFC 3576 Server list



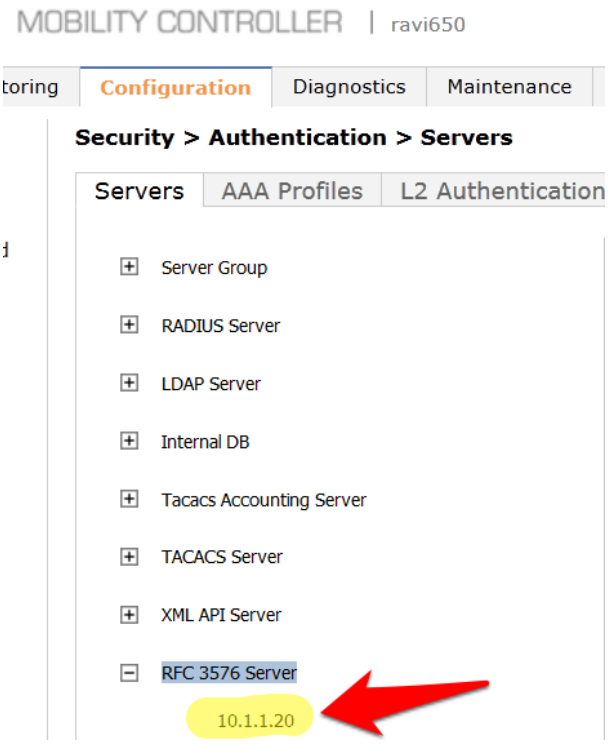
Enter the **IP address** of ClearPass in the entry box and click **Add**.

Figure 5 Adding a RF 3576 Server



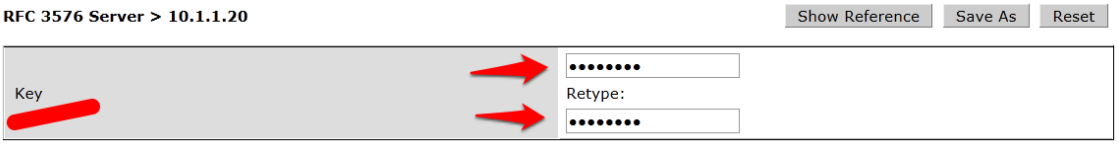
Click on the IP address of ClearPass that appears in the left column under RFC 3576 Server.

Figure 6 RFC 3576 Server IP



You will be presented with a screen in the right column that looks like this:

Figure 7 Enter the RADIUS shared key



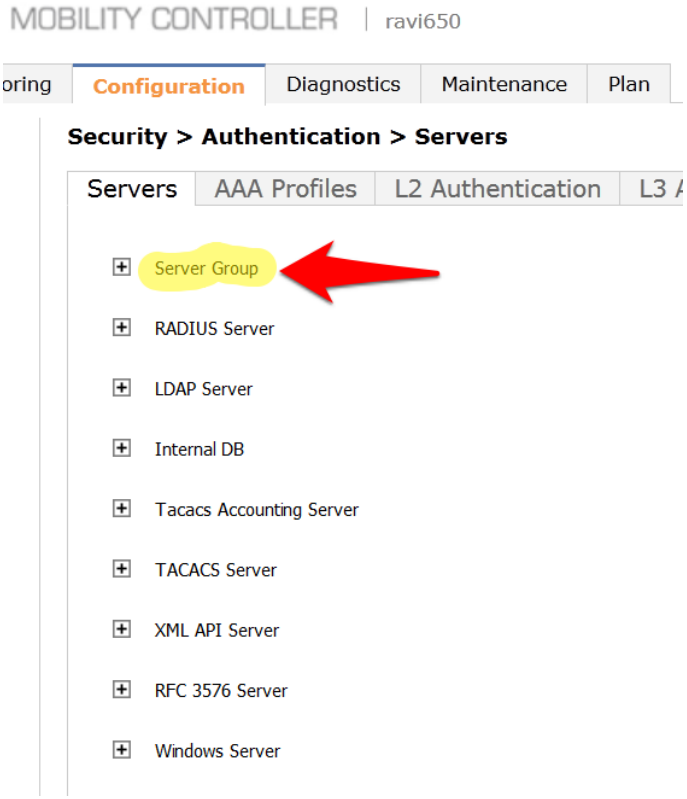
1. You **MUST** enter the RADIUS shared key into the key boxes. Enter <aruba123> in both boxes and click **Apply** at the bottom of the page to save the changes.

Note: This step is extremely important!

Step 3: Creating a new Server Group for ClearPass

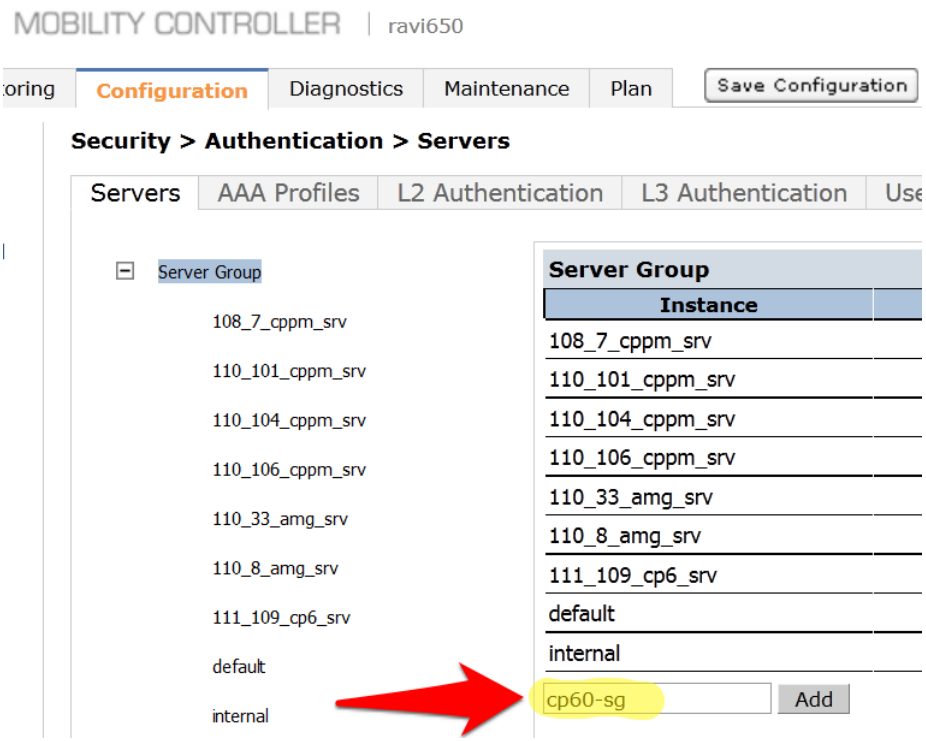
The next step is to create a new Server Group for ClearPass. Click on Server Group.

Figure 8 ClearPass Server Group



Enter a reference name for your ClearPass Server Group in the empty box and click **Add**.

Figure 9 Adding a ClearPass Server Group



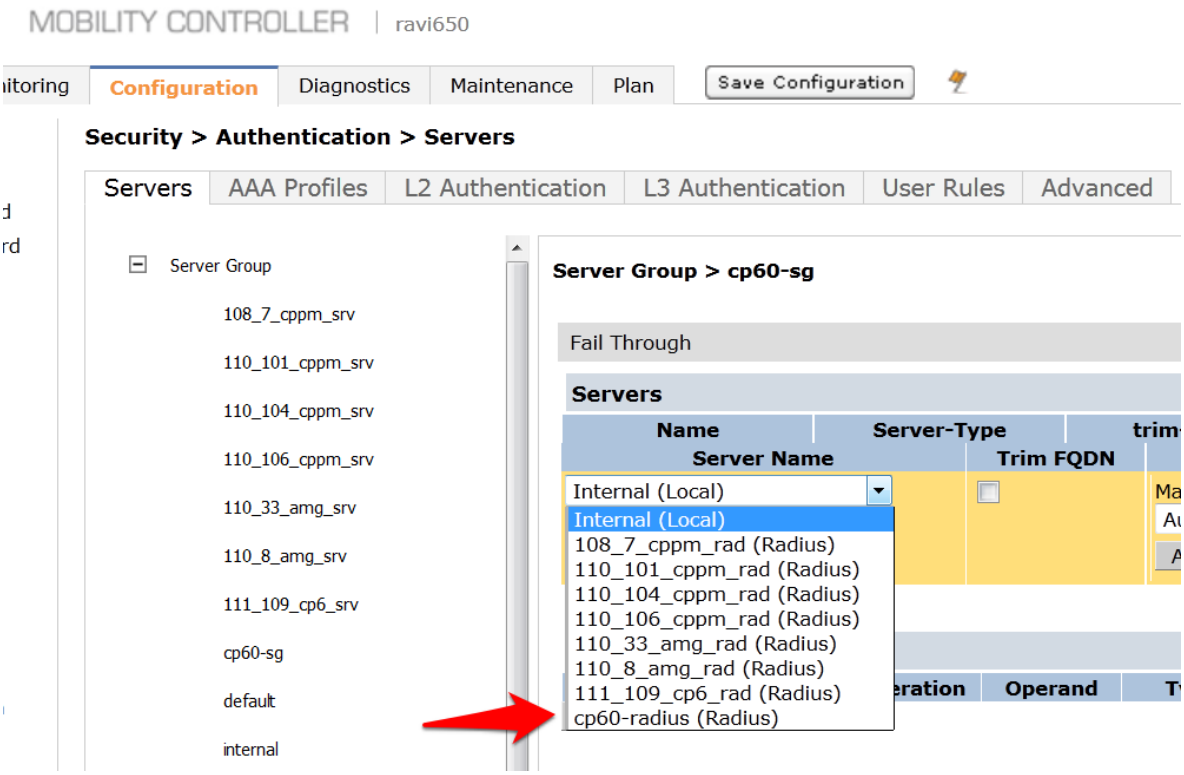
Select the newly created Server Group on the right under Server Group:

Figure 10 ClearPass Server Group list

Click **New** and select the ClearPass RADIUS server from the previous step.

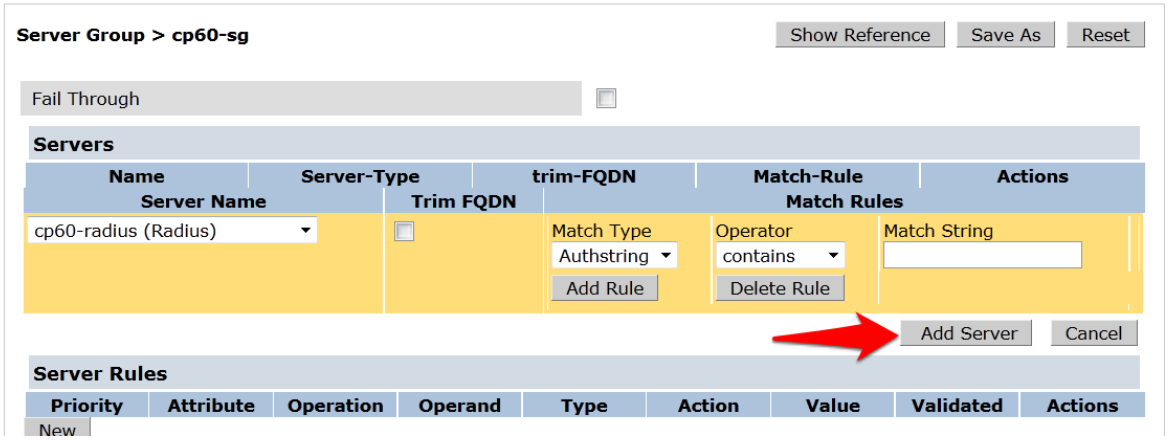
Figure 11 Adding a ClearPass RADIUS Server

Figure 12 Selecting the newly created ClearPass Server Group



2. Click **Add Server**. Click **Apply** at the bottom of the page to save the changes.

Figure 13 Select Add Server ClearPass button



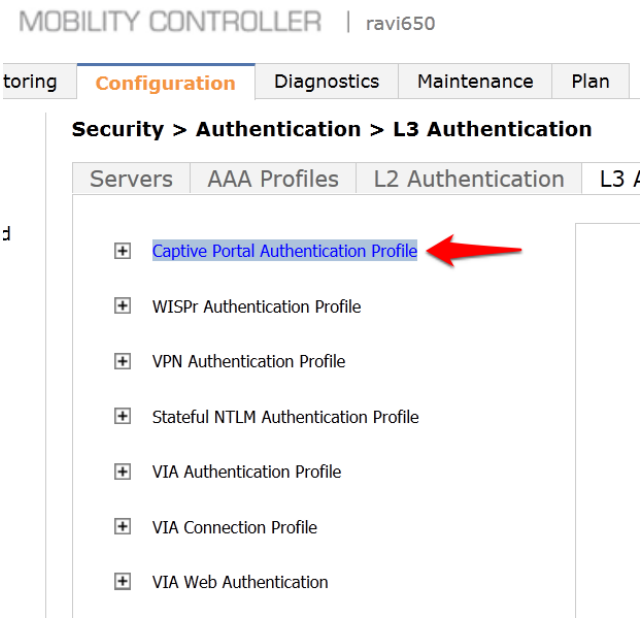
Captive Portal profile

Click on the **L3 Authentication tab**.

Figure 14 L3 Authentication tab

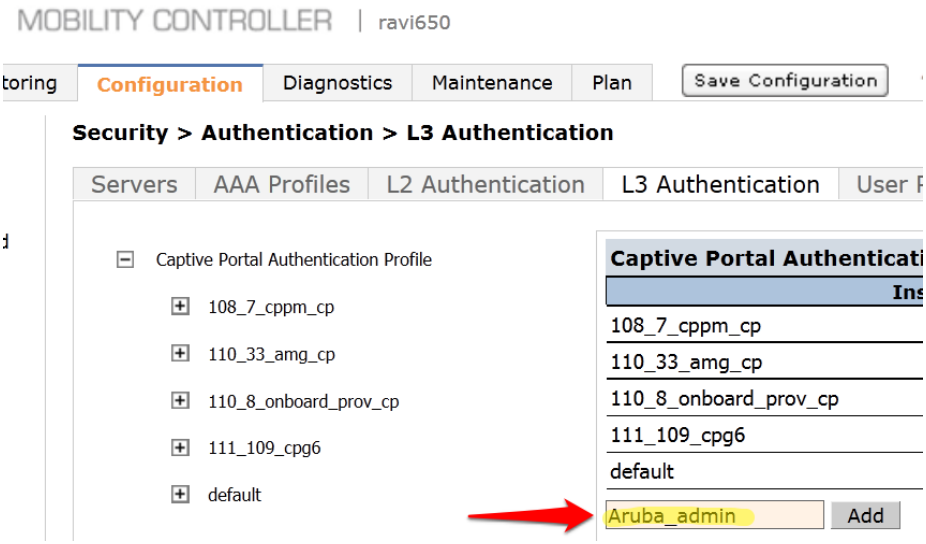
Click on **Captive Portal Authentication Profile**.

Figure 15 Select Captive Portal Authentication Profile



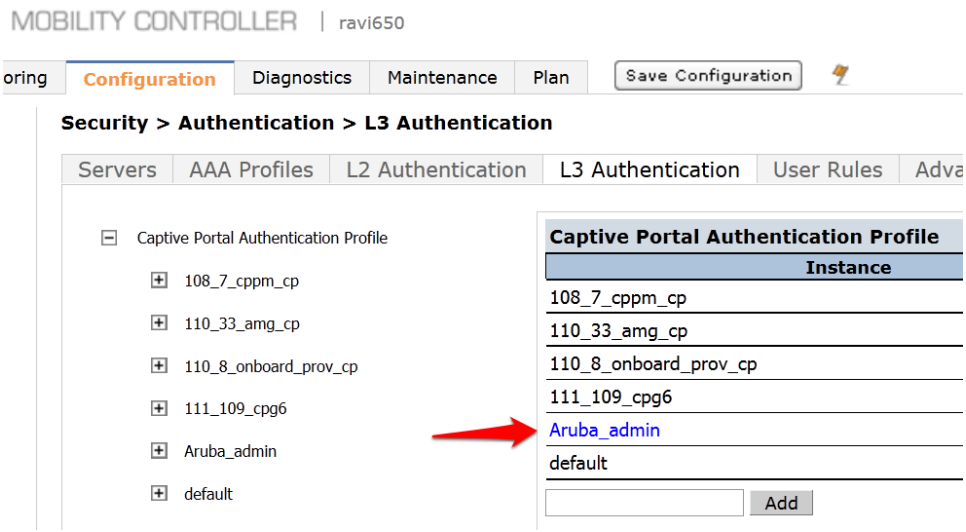
Enter a new Captive Portal profile name in the empty box and click **Add**.

Figure 16 Enter a new Captive Portal profile name



Select the newly created **Captive Portal Authentication Profile** under **Captive Portal Authentication Profile** on the right.

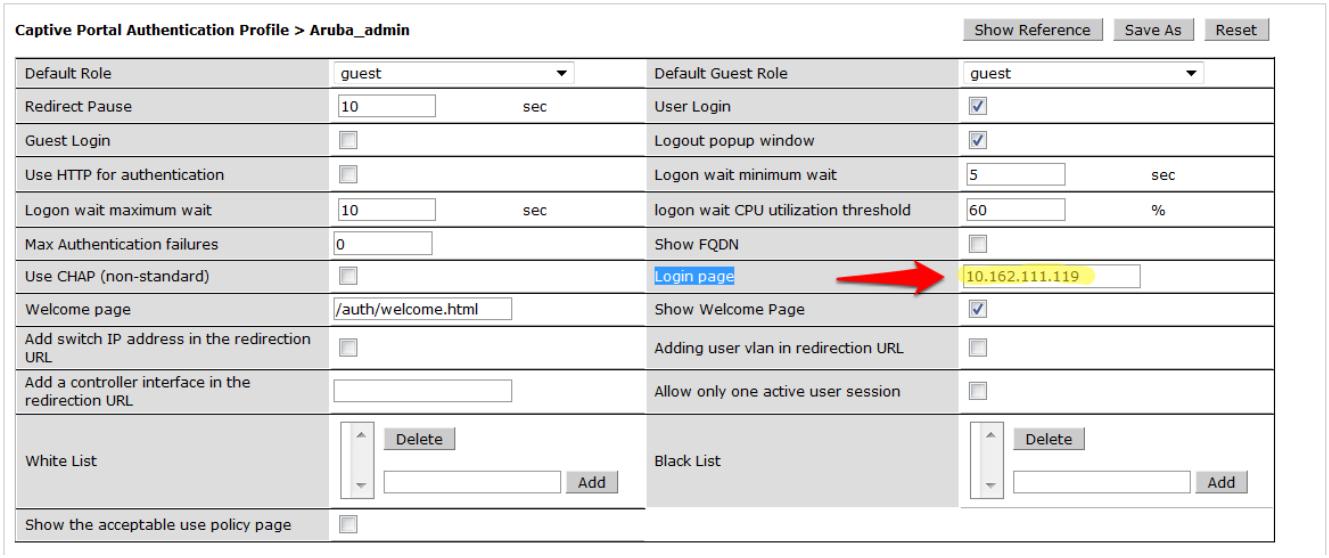
Figure 17 Select the newly created Captive Portal Authentication Profile



There are two things we need to change on this profile.

3. Change the **Login page** to http://10.1.1.20/guest/guest_register_login.php (replacing the 10.1.1.20 with the IP address of your ClearPass 6.0.1 server.

Figure 18 Captive Portal Authentication Profile login page IP



Click **Apply** at the bottom to save the changes.

4. Click on **Server Group** under the **Captive Portal Authentication Profile** and change the **Server Group** from **default** to the Server Group that you created for ClearPass in the previous steps and click **Apply** at the bottom of the page to save the changes.

Figure 19 Changing "default" server group to the newly created Captive Portal Authentication Profile server name

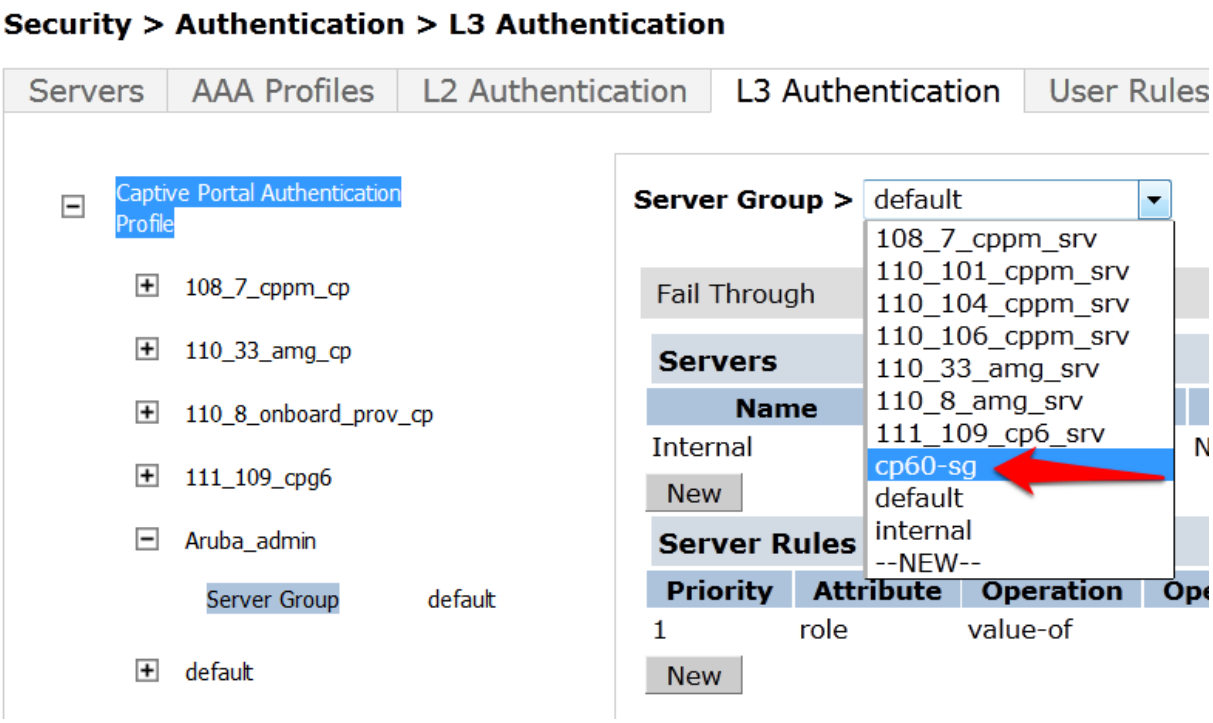
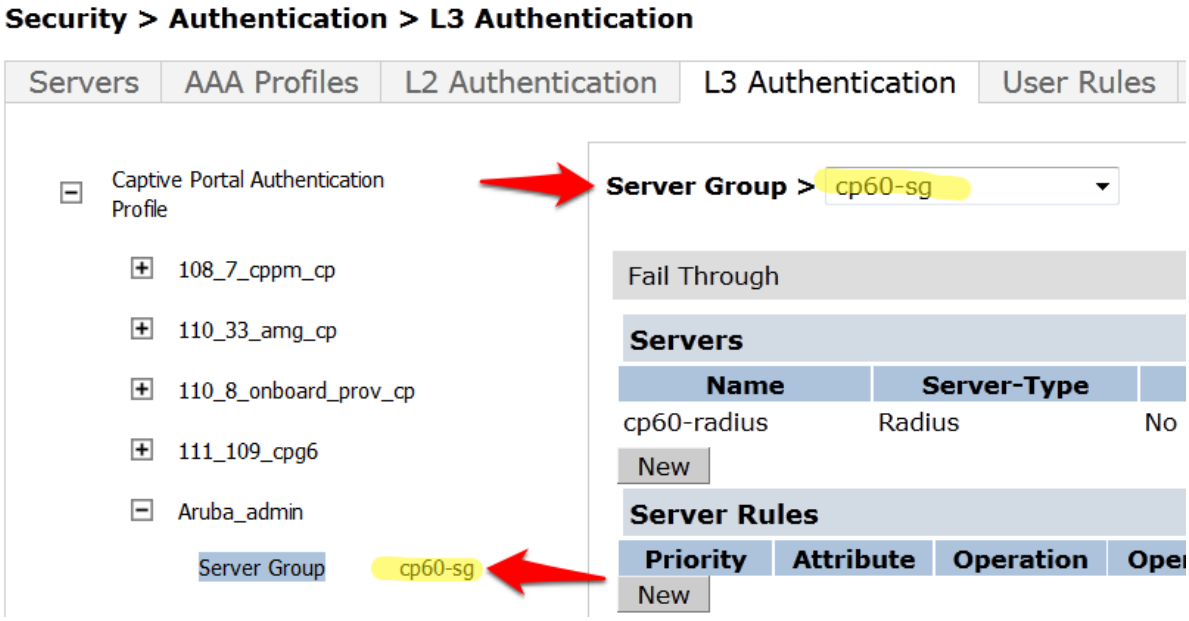


Figure 20 The newly created Captive Portal Authentication Profile server Group

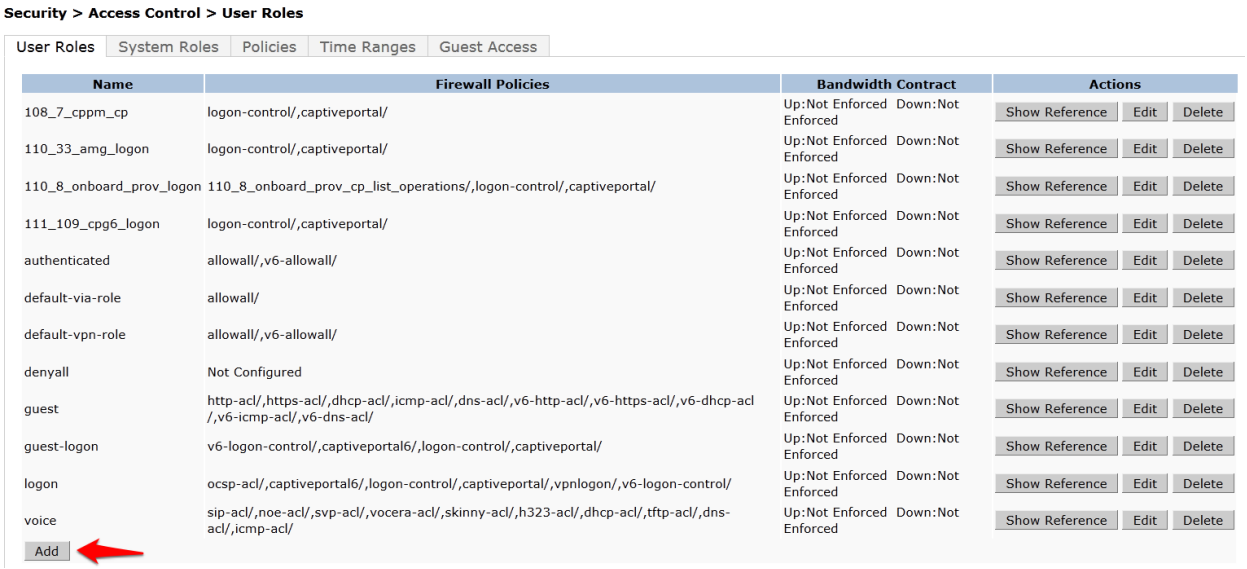


Step 4: Create a Captive Portal role

Now we need to create our Captive Portal role, which is the role that clients will receive when they connect to the Guest SSID.

Navigate to **Configuration->Security->Access Control->User Roles** tab. Click **Add** to create a new User Role.

Figure 21 User Roles tab



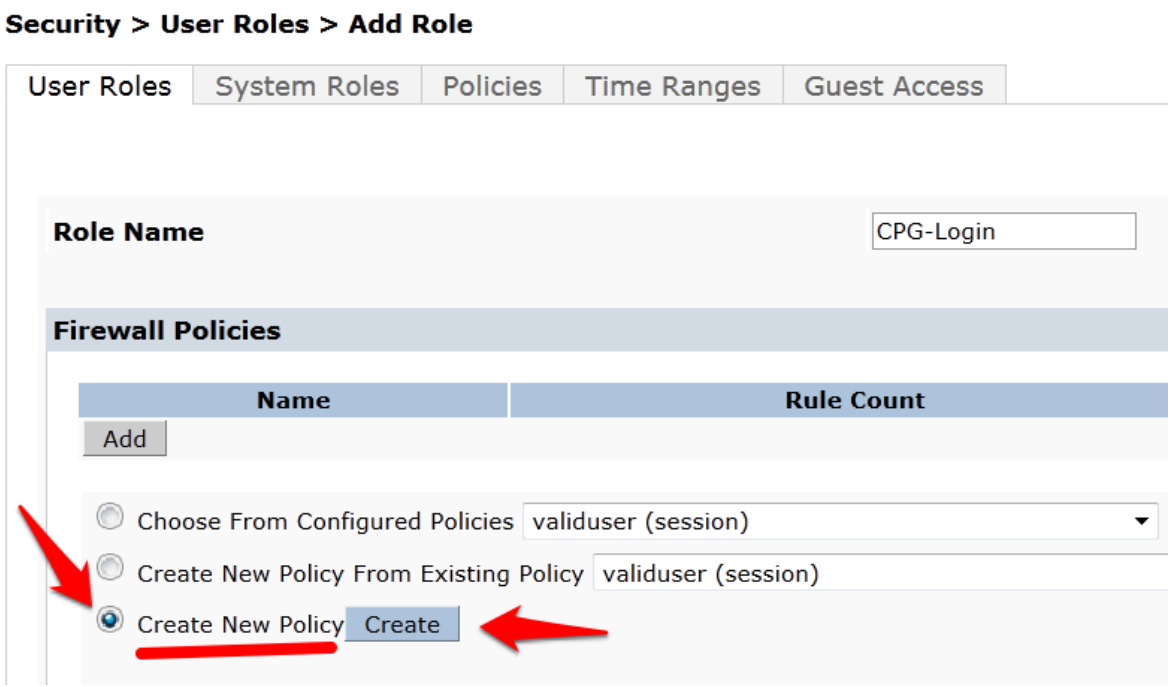
Enter a name like <CPG-Login> for the **Role Name** under **Firewall Policies**, Click **Add**.

Figure 22 Adding a User Role

For the first policy, it is essentially important that we add an ACL that will allow our Guest user to access ClearPass 6.0.1, which is where the Captive Portal webpage will be hosted.

Choose the radio button for **Create New Policy**, and click the **Create** button:

Figure 23 Create new User Role Policy

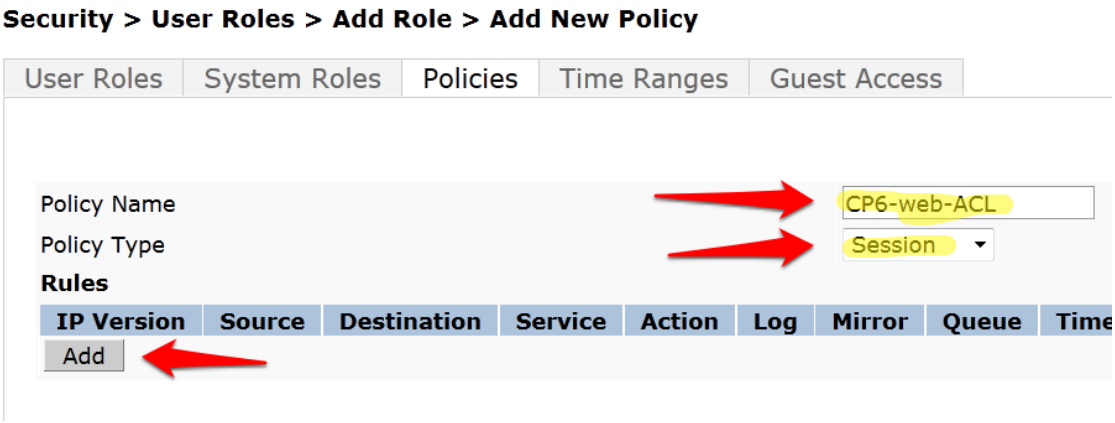


Enter and select the following information:

- **Policy Name**: <CP6-web-ACL>
- **Policy Type**: <Session>

Click **Add**.

Figure 24 Entering the Policy Name and Policy Type

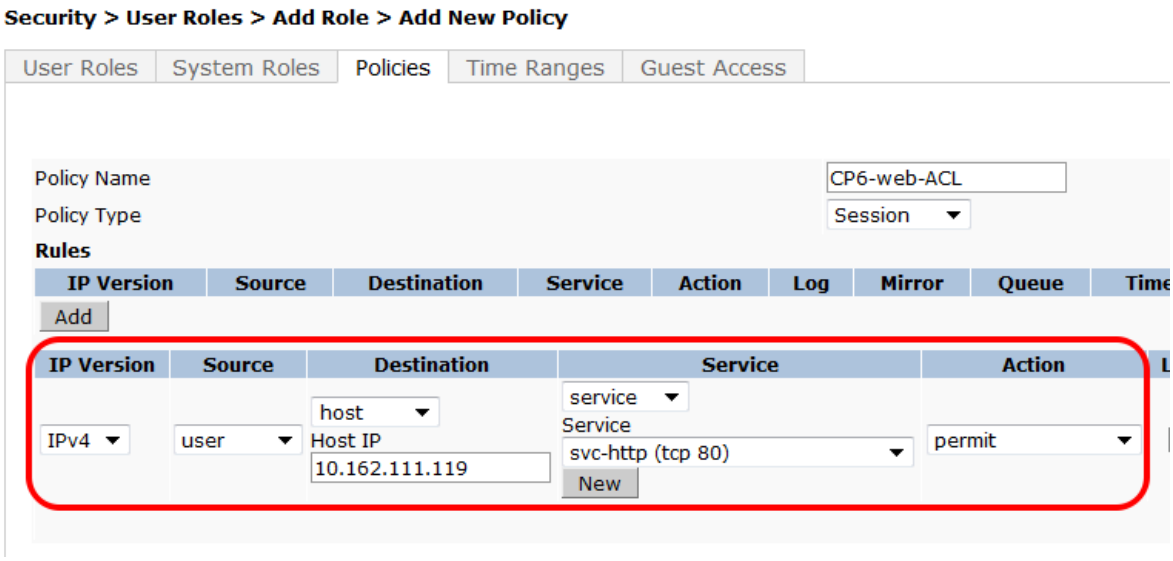


Select and enter the following information for the first line of the ACL:

- **IP Version**: <IPv4>
- **Source**: <User>
- **Destination**: host
  - **Host IP**: (the IP address of your ClearPass server)
- **Service**: <service>
  - **Service**: <svc-http (tcp 80)>

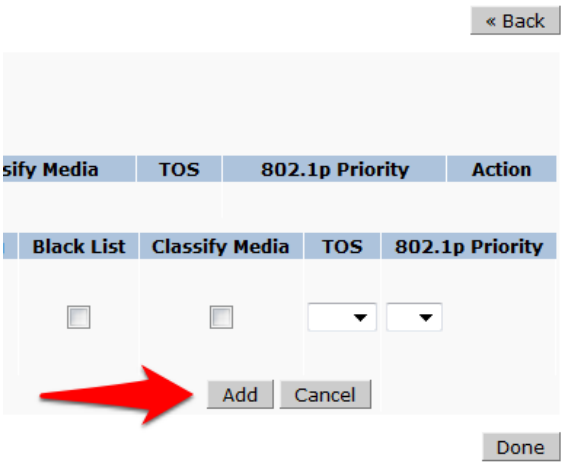
- **Action**: <permit>

Figure 25 Entering the ACL (Access Control List) field names



Click **Add** at the far right underneath this rule.

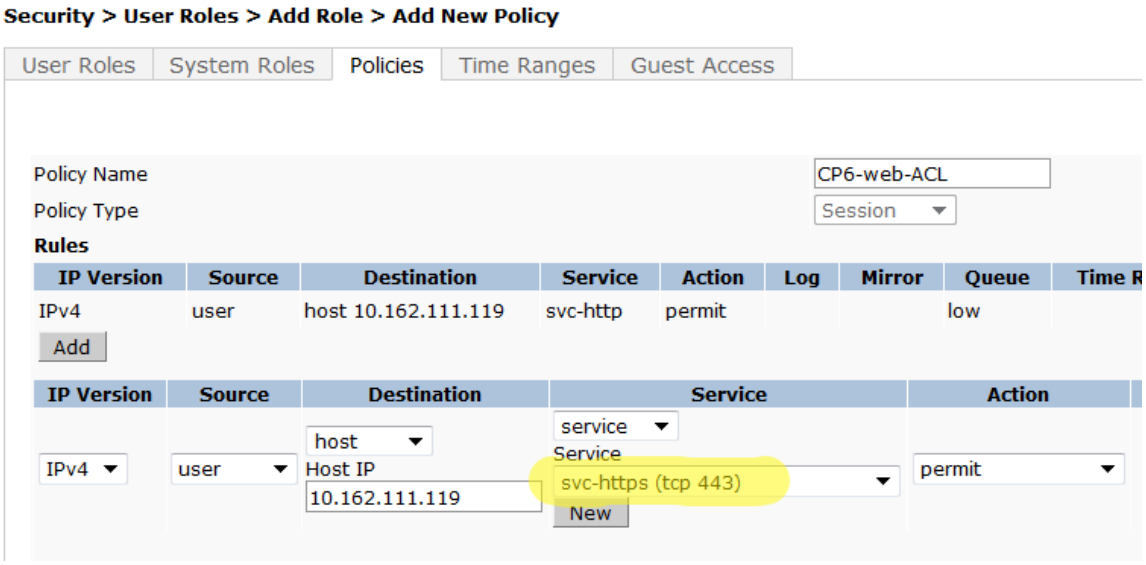
Figure 26 Firewall policy rule Add button



Click **Add** again to add another line to this ACL, identical to the previous line except:

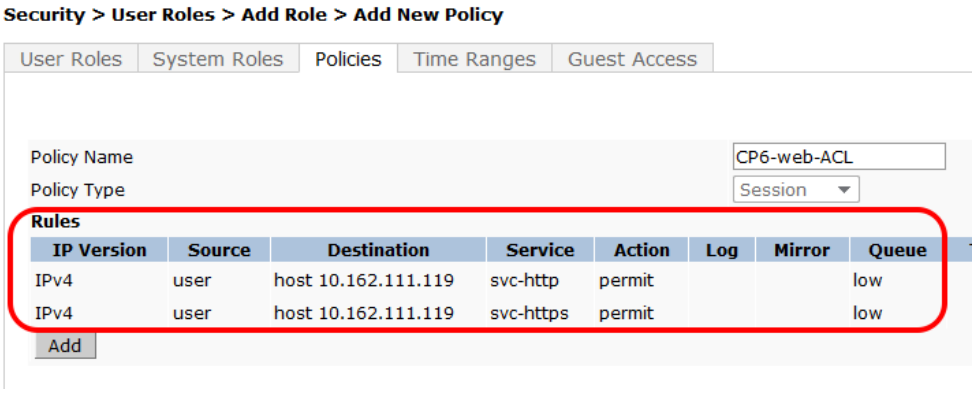
Choose **Service**: **svc-https (tcp 443**

Figure 27 Adding a svc-https (tcp 443 Service ACL



Click **Add** at the far right underneath this rule.

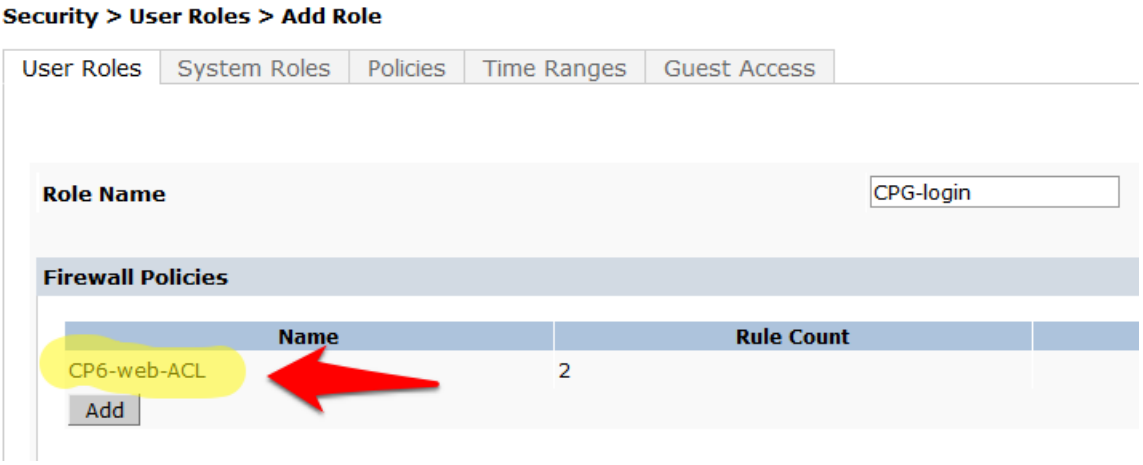
Figure 28 Accepting the ACL rows created



Click **Done**

You will be brought back to the Add Role page where you were creating your CPG-Login User Role.

Figure 29 User Roles Add page listings

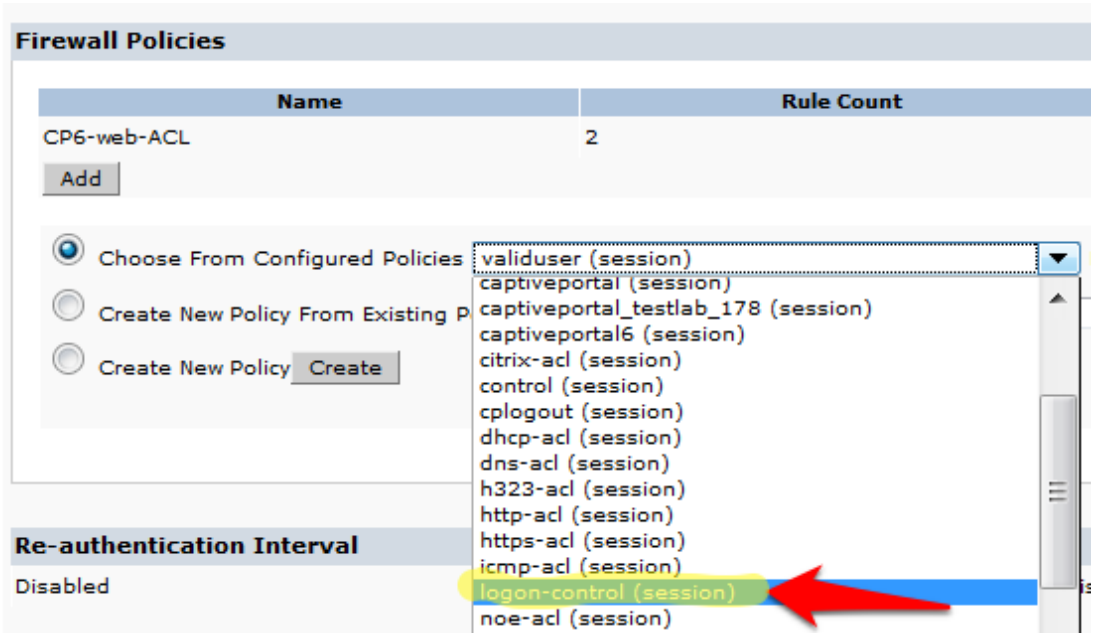


Step 5: Pre-configured Firewall Policies

The Firewall Policy that you just created has been added to the list. Now we need to add two more pre-configured Firewall Policies.

Click **Add** under **Firewall Policies**. Select the radio button for **Choose From Configured Policies** and select the policy called **logon-control (session)**.

Figure 30 Firewall logon-control (session) policy

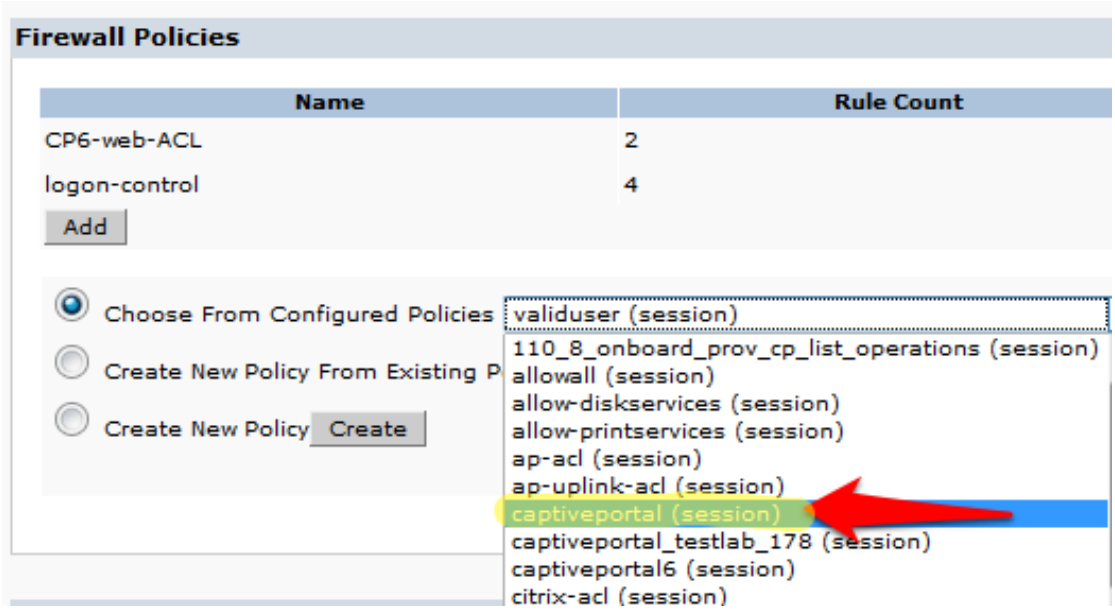


Click **Done** in the **Firewall Policies** section.

Click **Add** again in the **Firewall Policies** section.

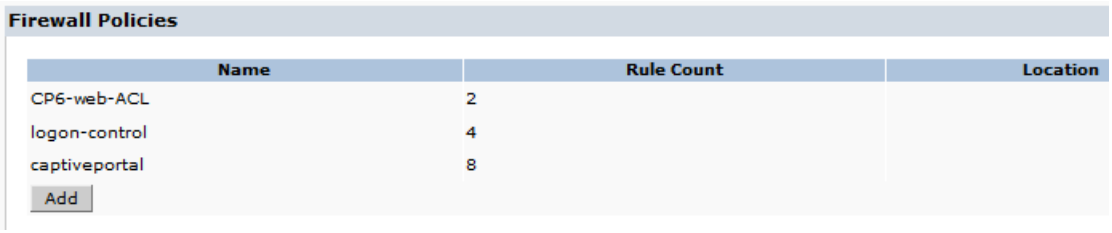
Select the radio button for **Choose From Configured Policies** and select the policy called **captiveportal (session)**.

Figure 31 Firewall "captiveportal (session)" policy



Click **Done** in the **Firewall Policies** section. Your Firewall Policy should look like this:

Figure 32 Firewall Policies list



NOTE: The Firewall policy order **MUST** place "captive portal" at the **bottom** of the list!

Scroll down this page to the **Captive Portal Profile** section.

Select the previously configured Captive Portal Profile from the drop-down list.

Figure 33 Aruba_admin captive portal being chosen

Click the **Change** button.

Figure 34 Select the previously configured Captive Portal Profile

Verify that the "Not Assigned" has changed to the name of your Captive Portal Profile.

Click **Apply** at the bottom of the page to save the newly created User Role.

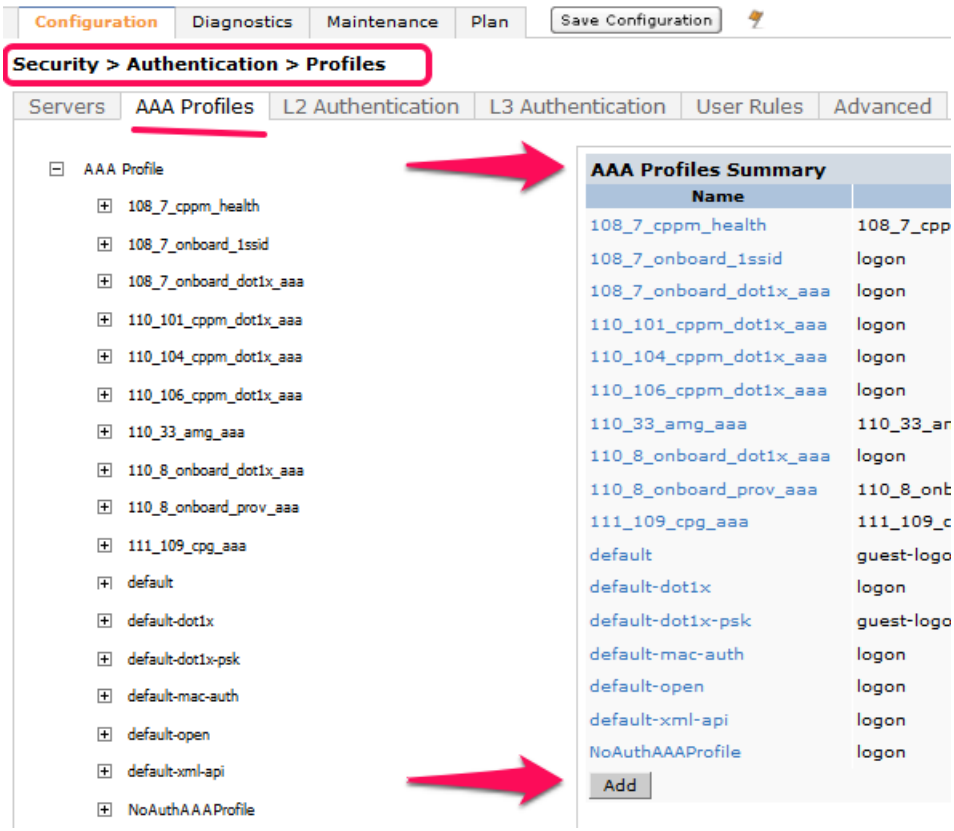
Step 6: Creating AAA Profiles for the ClearPass Guest and 802.1x SSID

The next step is to create AAA Profiles for the ClearPass Guest and 802.1x SSID.

Navigate to **Configuration->Security->Authentication->AAA Profiles tab**.

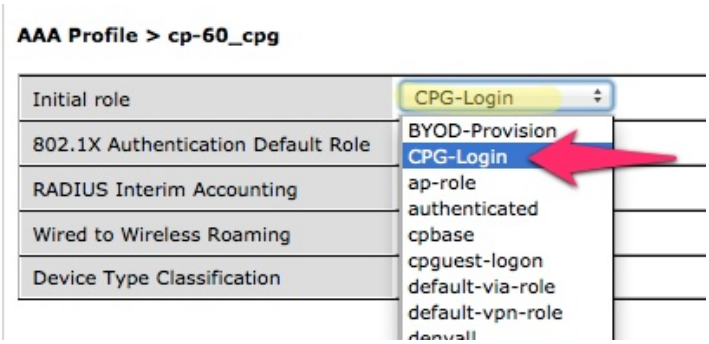
Click **Add**, enter a name for the ClearPass Guest Profile, and then click **Add** again.

Figure 35 Adding a ClearPass Guest Profile



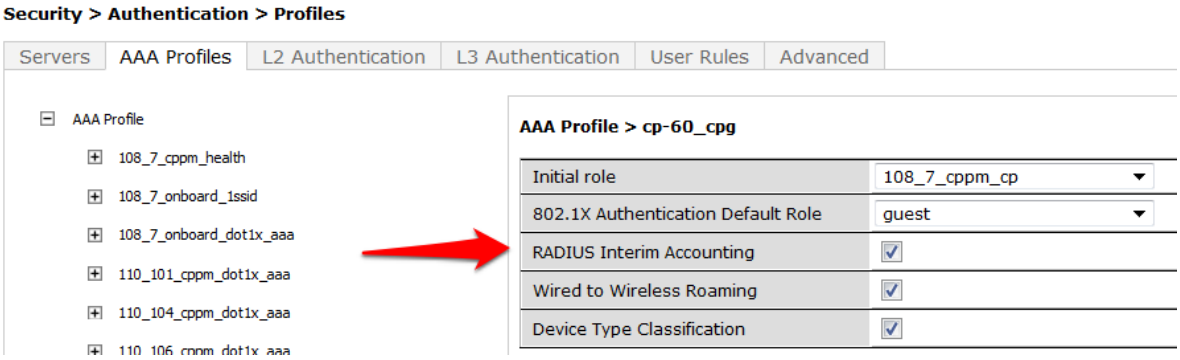
Now in the left column, click on the new profile that you just created. Change the Initial role to the role that you created in Step 4: Create a Captive Portal role page 20.

Figure 36 Changing the default Initial role



Tech Tip: On this page you will see an option for **RADIUS Interim Accounting**. This should be checked if you want live utilization updates in ClearPass, usually used to control guest users based on Bandwidth Utilization.

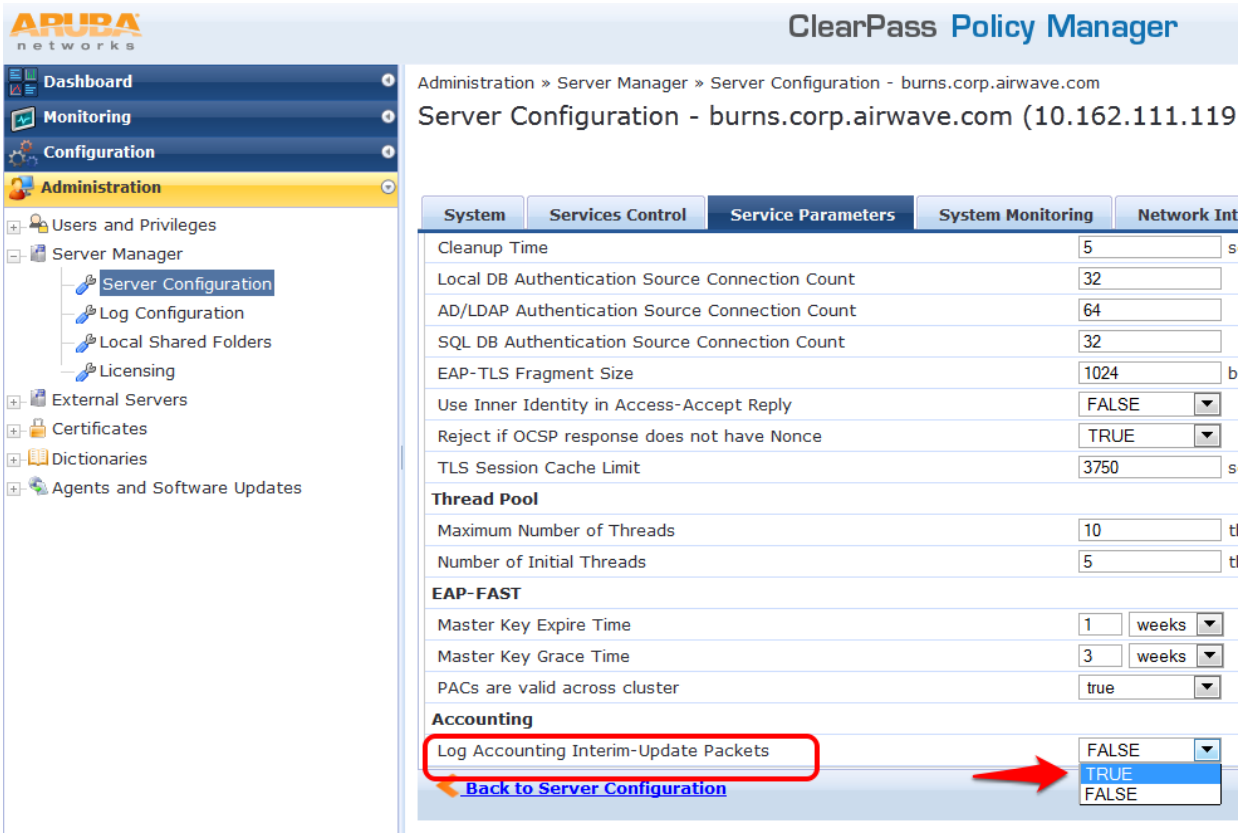
Figure 37 RADIUS Interim Accounting option



Note: This also needs to be enabled on ClearPass.

In ClearPass Policy Manager, navigate to:
Administration->Server Manager->Server Configuration->Select Server->Service Parameters->RADIUS Server->Log Accounting Interim-Update Packets="TRUE".

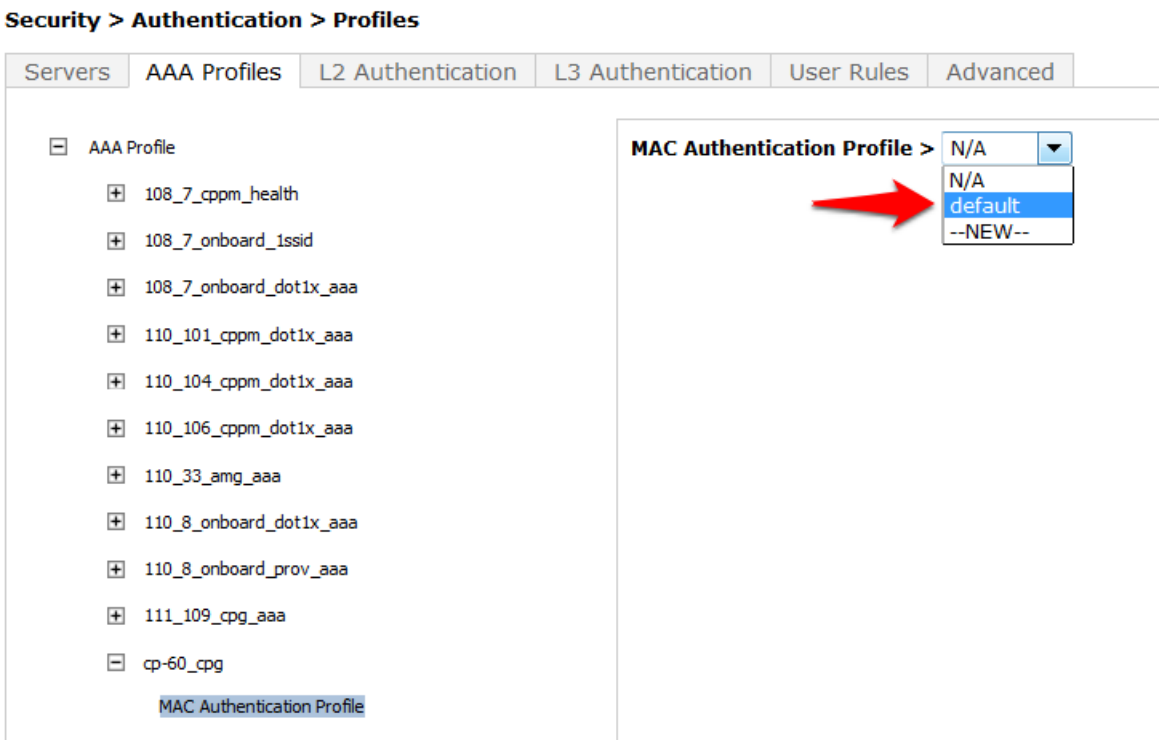
Figure 38 Log Accounting Interim-Update Packets option in CPPM



Set the subsections of the profile as described below, clicking **Apply** after each change:

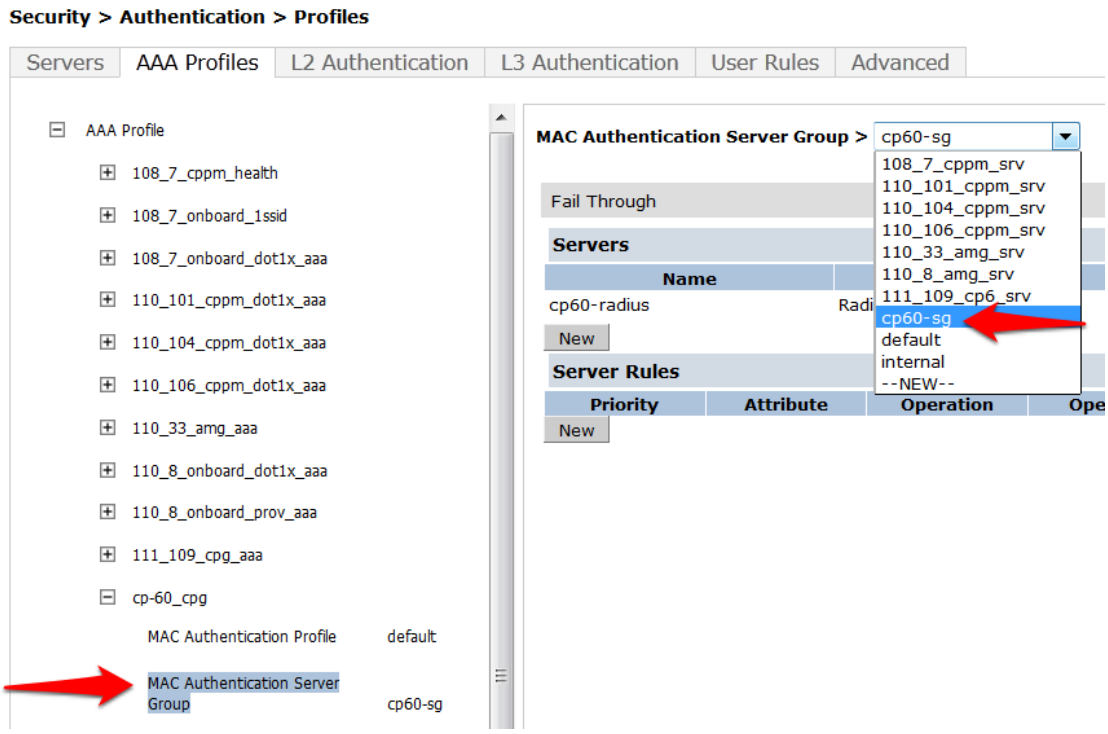
MAC Authentication Profile: **default**

Figure 39 MAC Authentication Profile setting = default



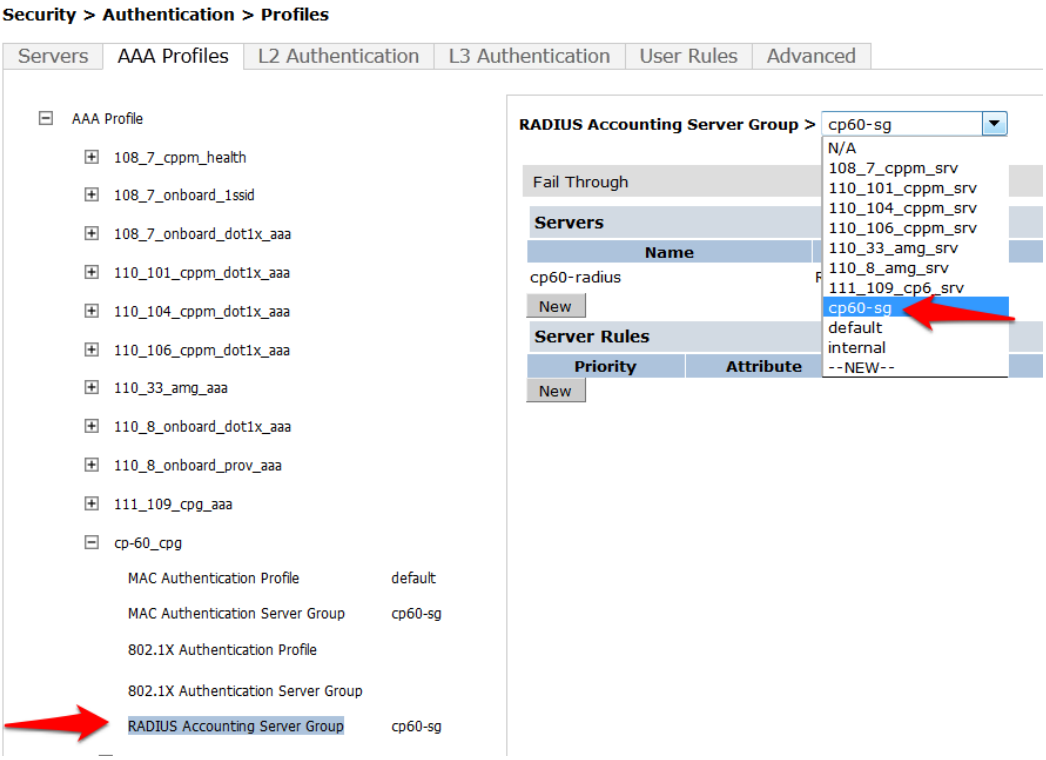
MAC Authentication Server Group: (*Your ClearPass 6.0.1 Server Group*)

Figure 40 MAC Authentication Server Group option



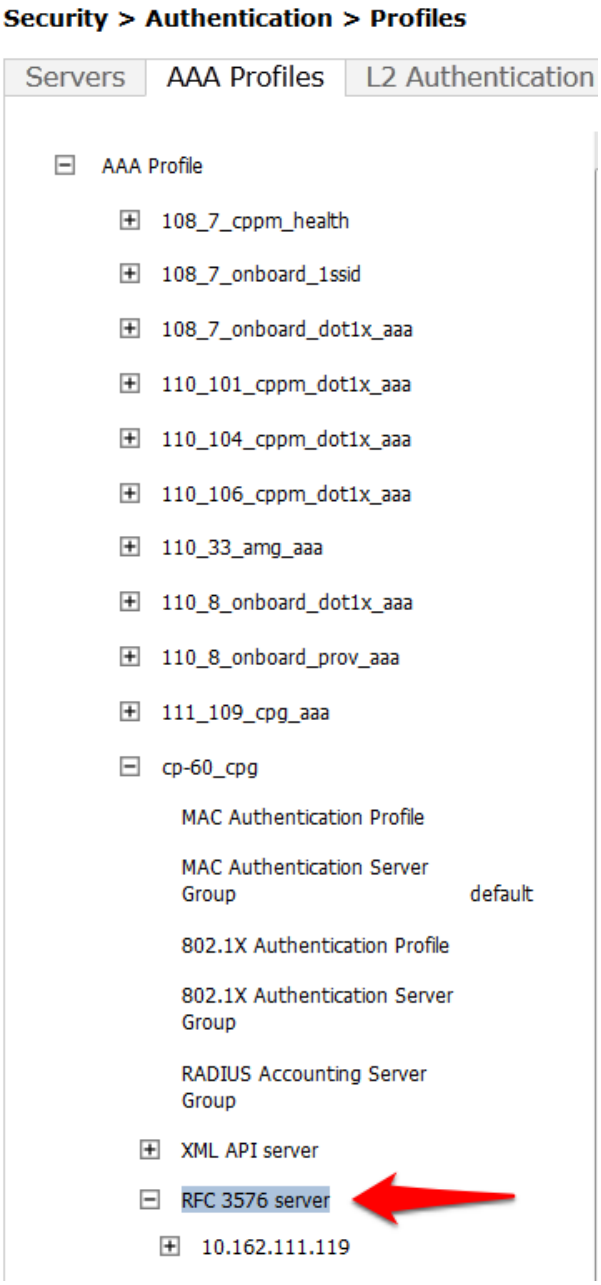
RADIUS Accounting Server Group: *(Your ClearPass 6.0.1 Server Group)*

Figure 41 RADIUS Accounting Server Group option



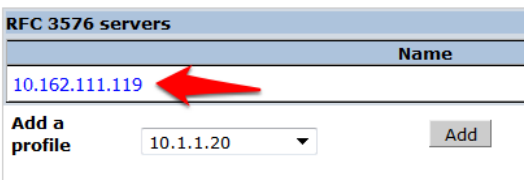
Click on **RFC 3576** for this AAA Profile.

Figure 42 RFC 3576 for this AAA Profile



From the **Add a profile** list, select the IP address of your ClearPass server and click the **Add** button.

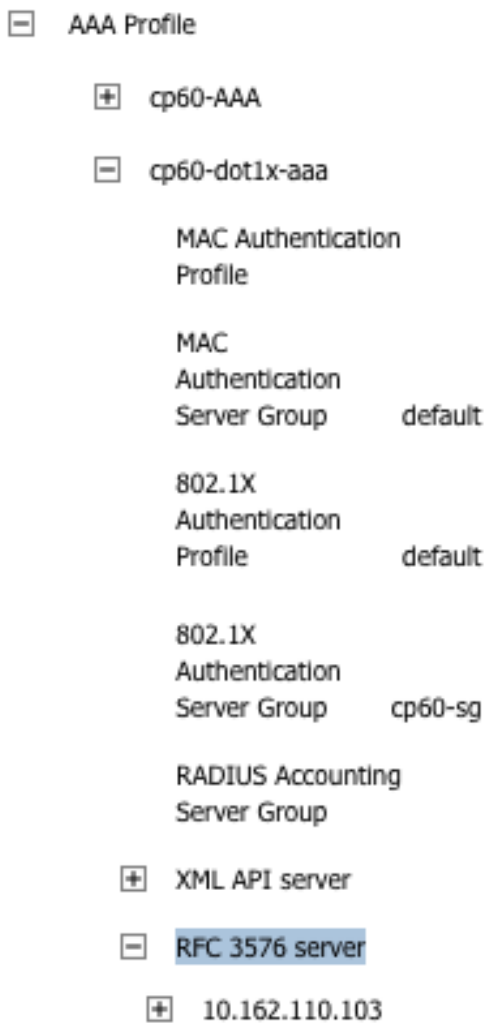
Figure 43 IP address of your ClearPass server



Click **Apply** to save these settings.

Repeat Creating AAA Profiles for the ClearPass Guest and 802.1x SSID, page 26, to create the AAA Profile for the 802.1x SSID. The only difference is that this AAA Profile will have 802.1x settings but no MAC Authentication Profile. See example below:

Figure 44 Configuring no MAC Authentication Profile



Step 7: Associating a 802.1x SSID and Guest SSID with AAA Profiles

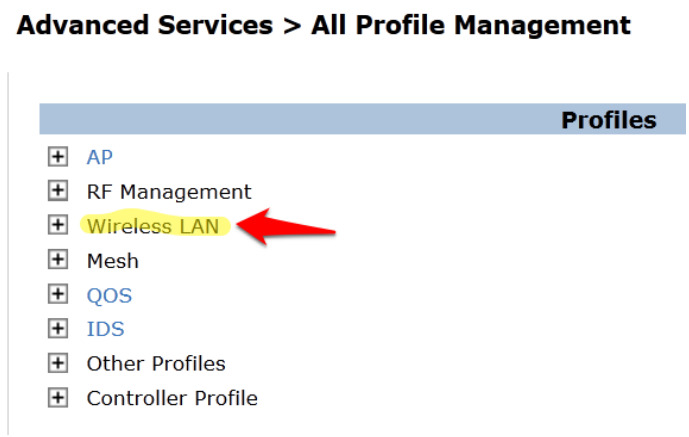
The next step is to associate our 802.1x SSID and Guest SSID with the AAA Profiles we just created.

Navigate to **Configuration->Advanced Services->All Profiles**.

Figure 45 Advanced Services All Profiles menu

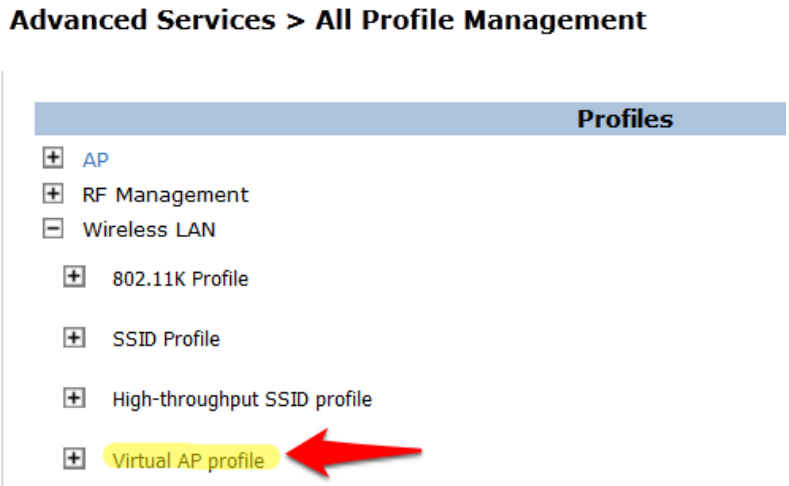
Expand the **Wireless LAN** section.

Figure 46 Advanced Services Wireless LAN Profile



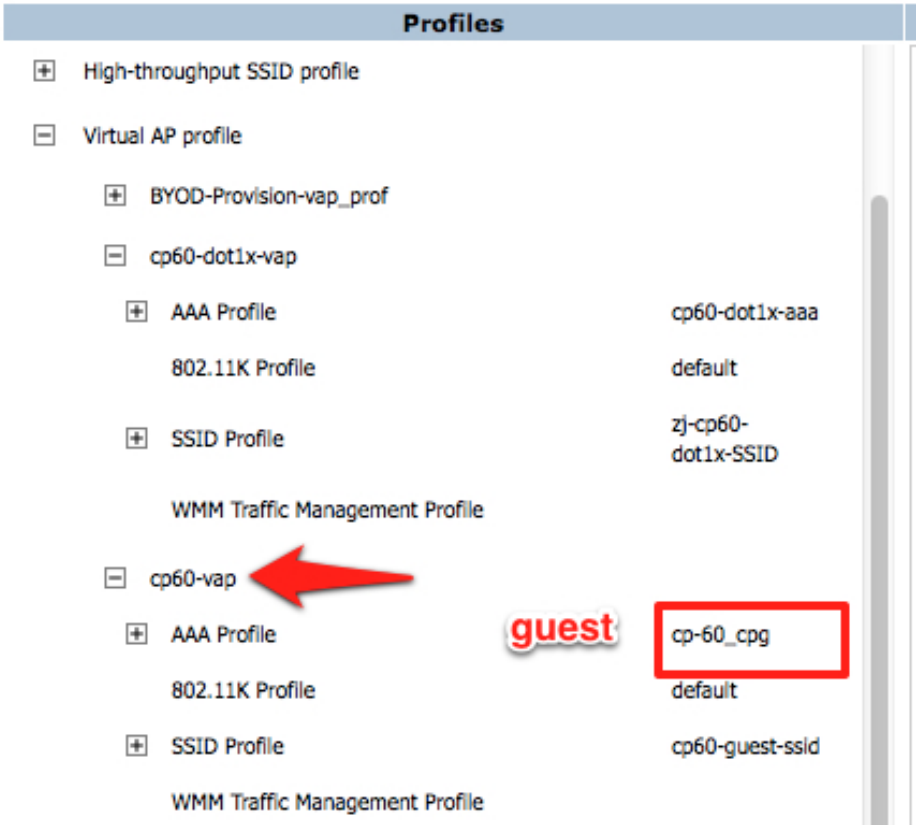
Expand the **Virtual AP profile** and locate your Guest and 802.1x SSID profiles.

Figure 47 Advanced Services Virtual AP Profile



Modify each Virtual AP profile to use the appropriate AAA Profile that you created in the previous section.

Figure 48 Virtual AP Profile modifications



Make sure to click **Apply** after each change.

Click the **Save Configuration** button at the top of the page once the changes are completed.

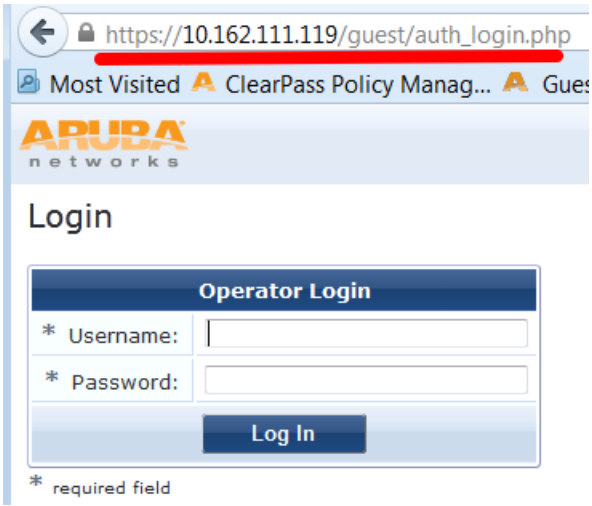
Step 8: ClearPass Guest Setup

In this step we will configure basic Guest Registration and Login.

Basic Guest Registration and Login configuration

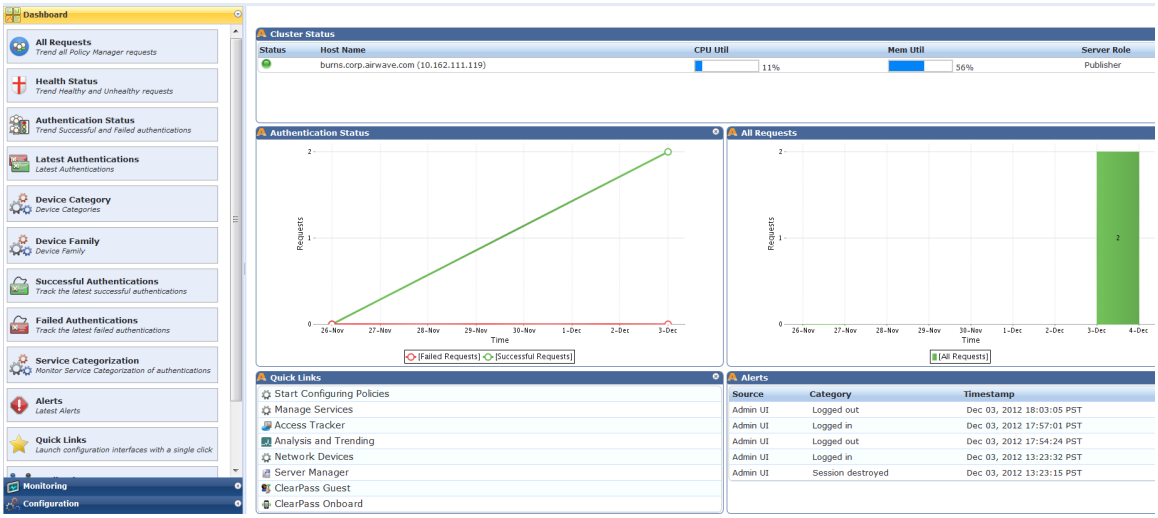
Log into ClearPass Policy Manager (https://<your-cp-ip-here>/tips).

Figure 49 Policy Manager login



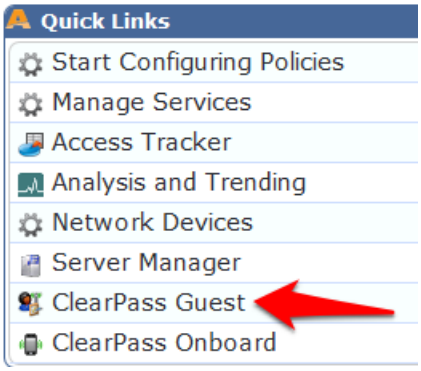
After you login, you will see the ClearPass Policy Manager Dashboard.

Figure 50 ClearPass Policy Manager Dashboard



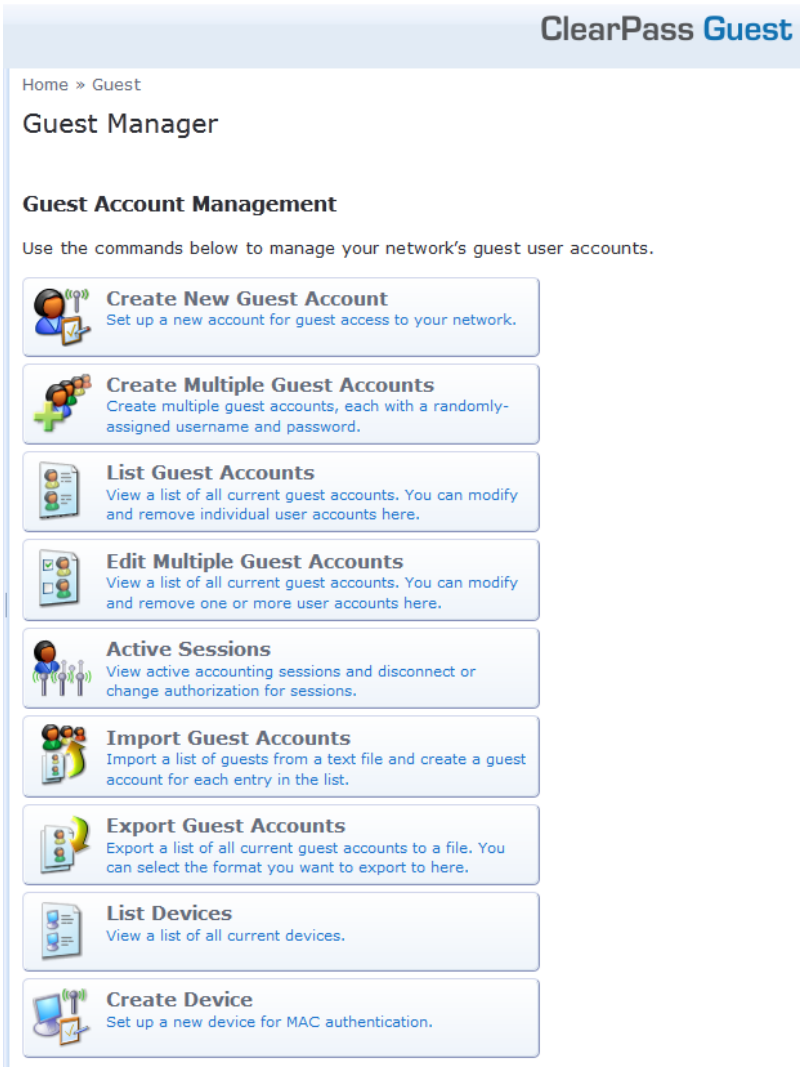
One of the Dashboard objects is Quick Links. Click on the quick link for ClearPass Guest

Figure 51 ClearPass Guest Quick Link



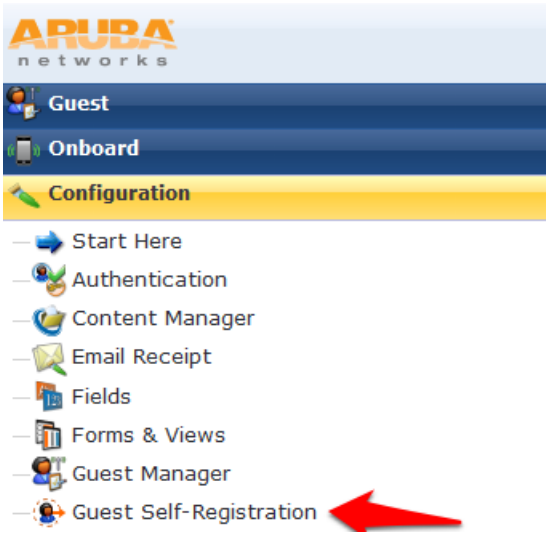
Clicking this link will automatically log you into the ClearPass Guest administration page. Alternatively you could enter the url for the Guest page) (https//<your-cp-ip-here>/guest).

Figure 52 ClearPass Guest administration page



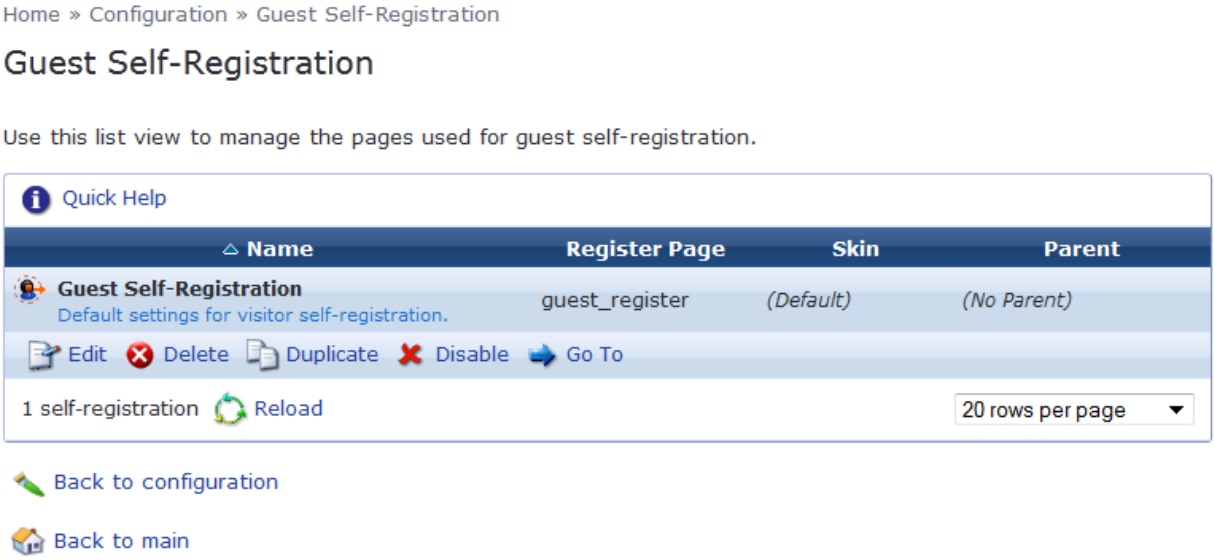
Navigate to **Configuration->Guest Self-Registration**.

Figure 53 ClearPass Guest Self-Registration selection



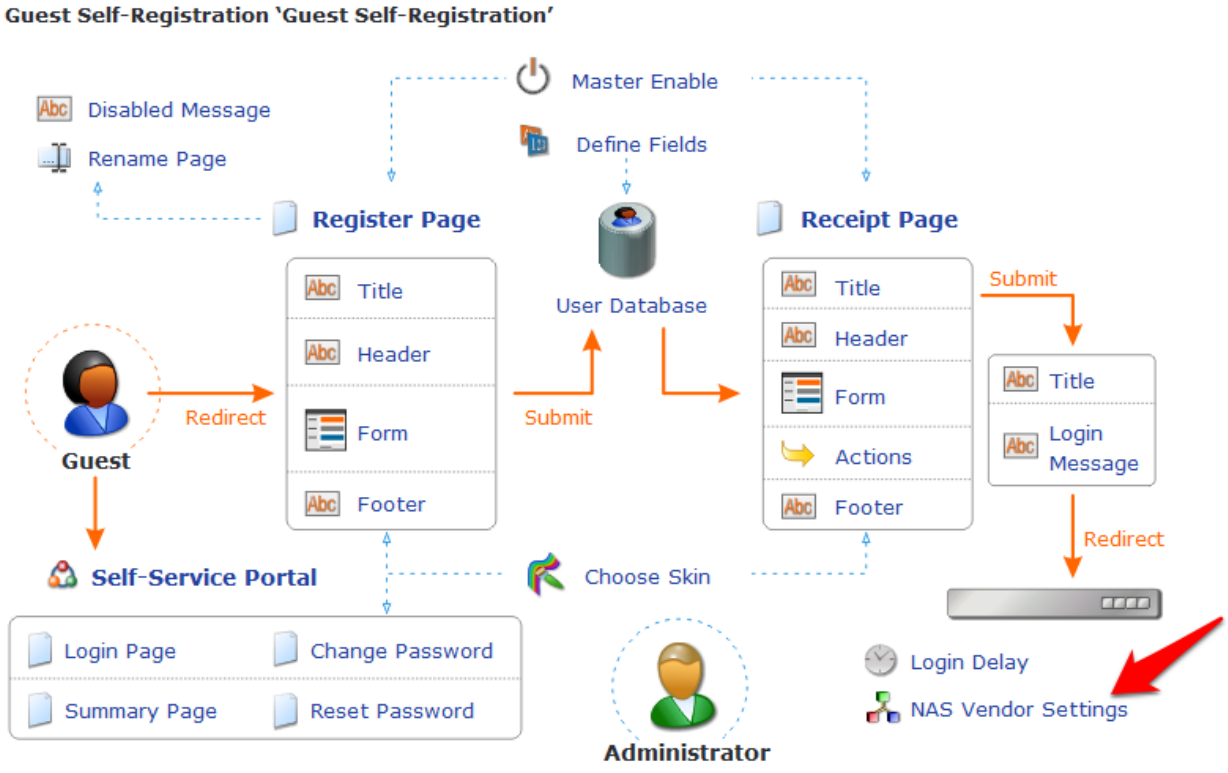
Click on the preconfigured **Guest Self-Registration** profile. This will reveal several options. Click **Edit**.

Figure 54 ClearPass Guest Self-Registration menu



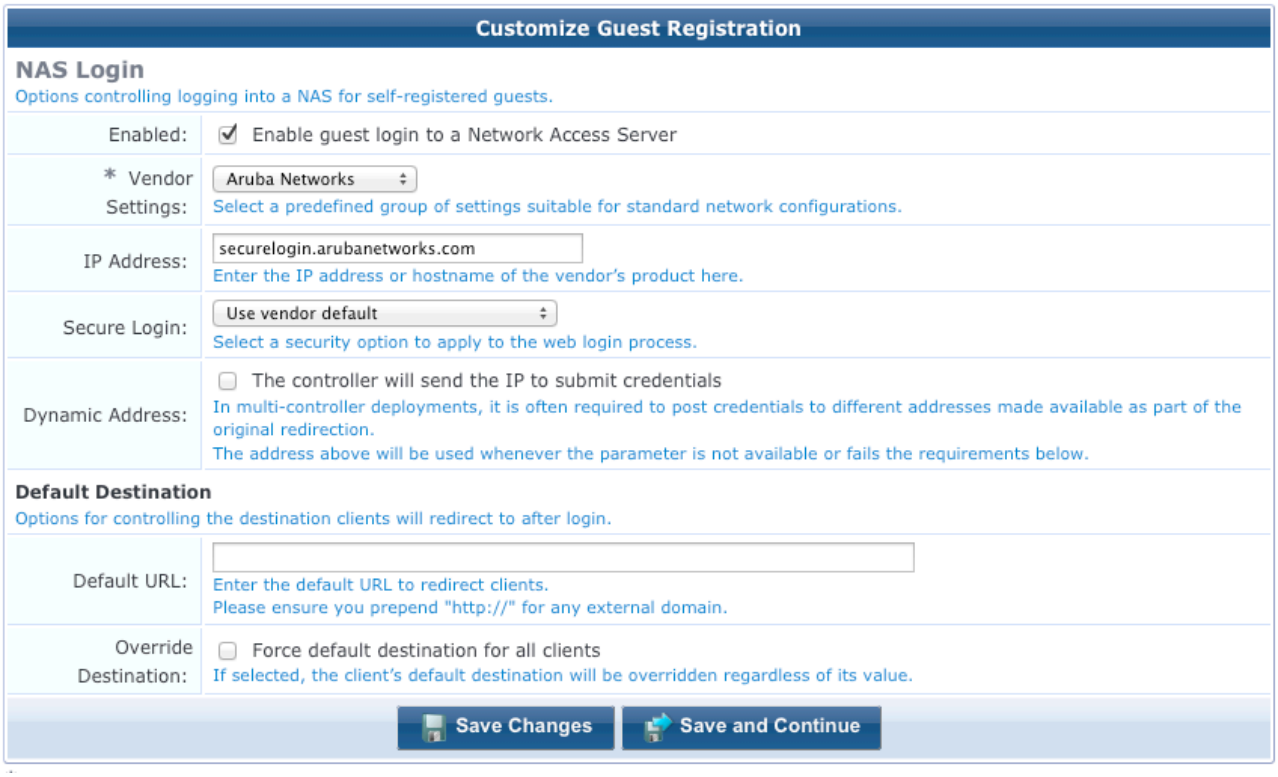
In this guest registration profile, it is necessary to enable web login. Click **NAS Vendor Settings** from the edit diagram:

Figure 55 NAS Vendor Settings



On the **NAS Login** settings page, check the checkbox to **Enable guest login to a Network Access Server**. It will prepopulate the settings with Aruba Networks NAS settings.

Figure 56 Enable guest login to a Network Access Server

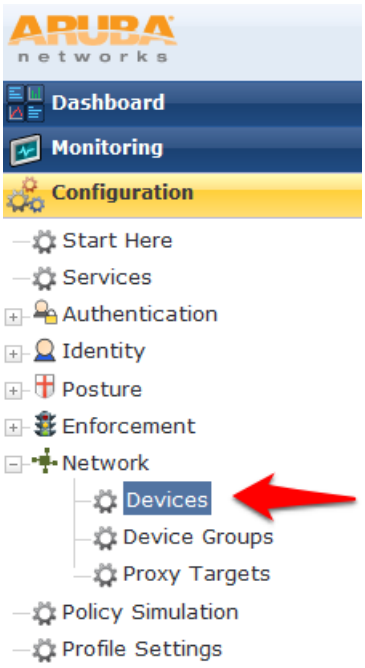


Click **Save Changes.**

2. ClearPass Policy Manager Setup

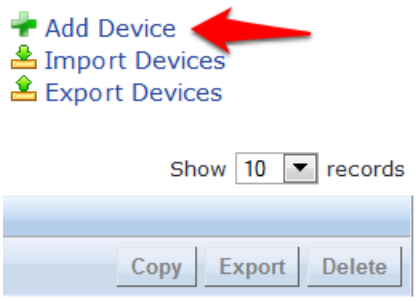
In ClearPass Policy Manager, navigate to **Configuration->Network->Devices**.

Figure 57 ClearPass Policy Manager Network Devices selection



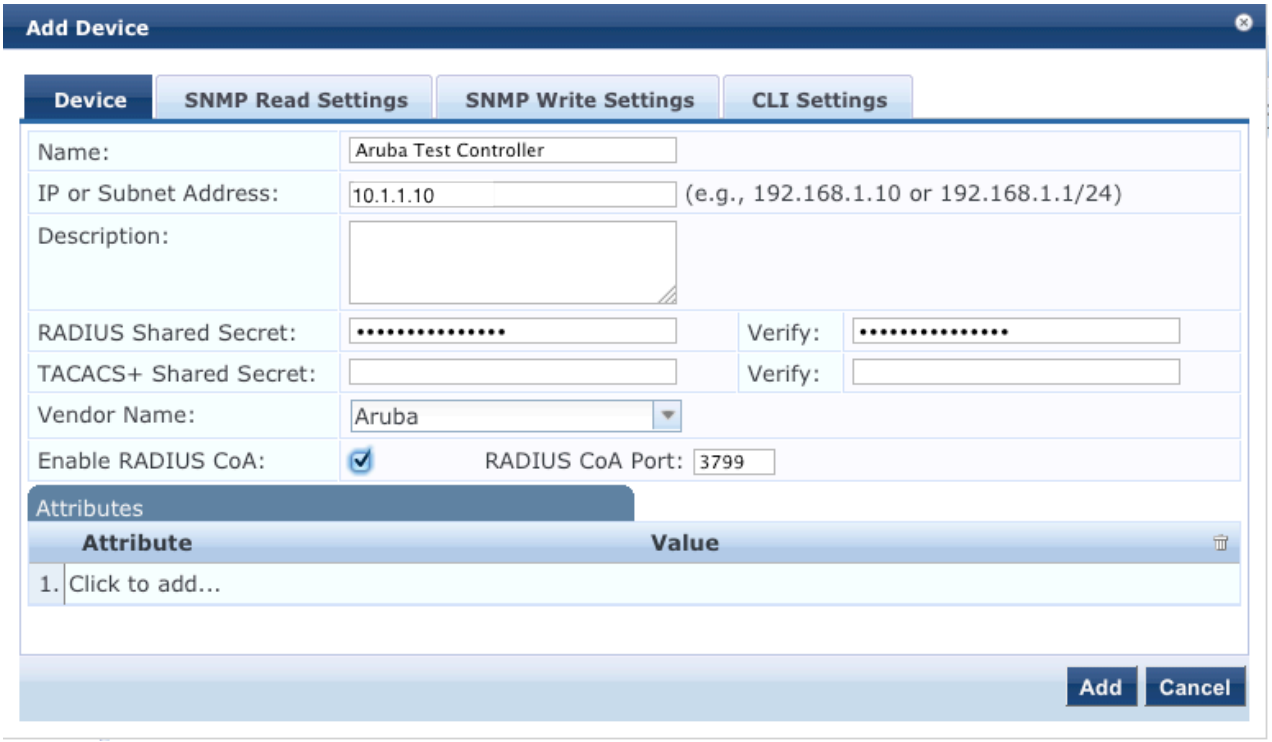
Click **Add Device** in the top right corner of the page.

Figure 58 Add a ClearPass Policy Manager Network Device



Enter a **Name** and the **IP or Subnet address** for your Wireless Controller. For the RADIUS Shared Secret, enter <aruba123> (the same shared secret we used in the Controller setup for RADIUS and RFC 3576). Select **Aruba** as the **Vendor Name**, and check the box to **Enable RADIUS CoA**

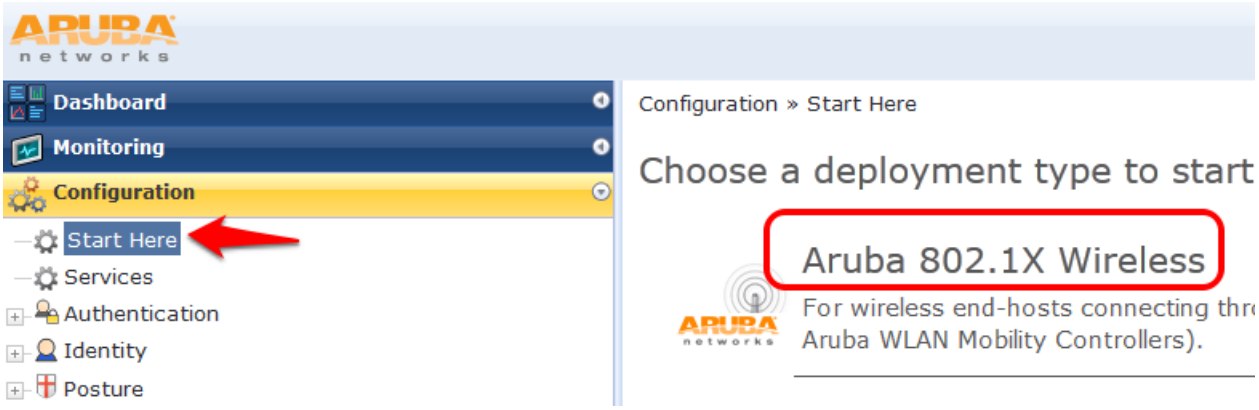
Figure 59 Configuring a ClearPass Policy Manager Network Device



Click **Add**.

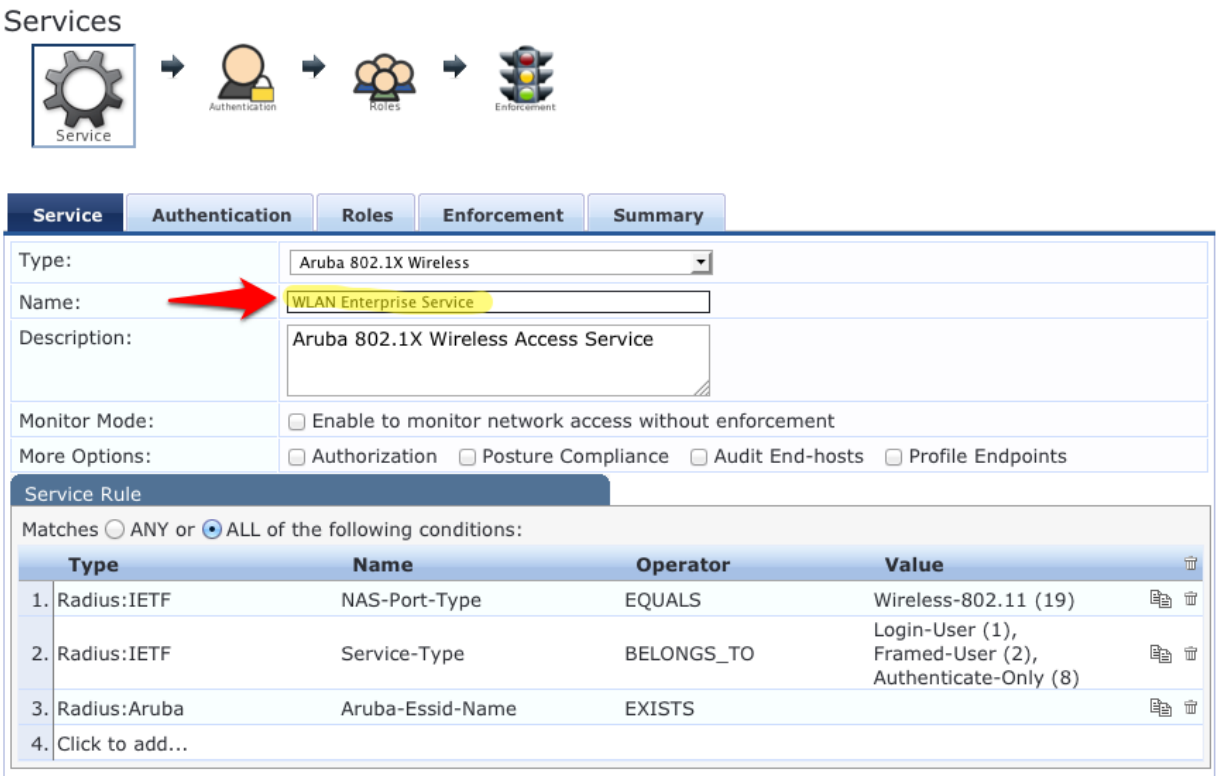
Navigate to **Configuration->Start Here** and select Aruba 802.1X Wireless.

Figure 60 Aruba 802.1X Wireless 'Start Here' selection



Give the service a name such as <WLAN Enterprise Service>.

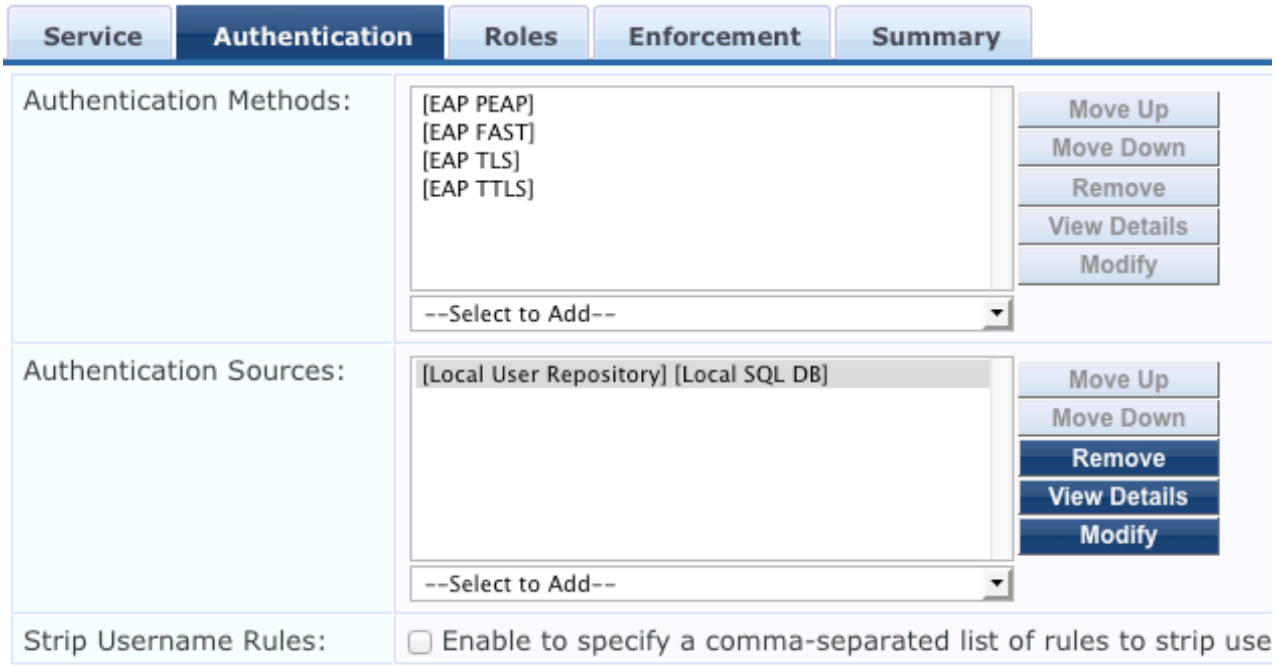
Figure 61 Naming a 802.1X Wireless Service



Click **Next**.

On the **Authentication** tab, Click the **Select to Add** down arrow and choose **[Local User Repository] [Local SQL DB]** as the **Authentication Sources**.

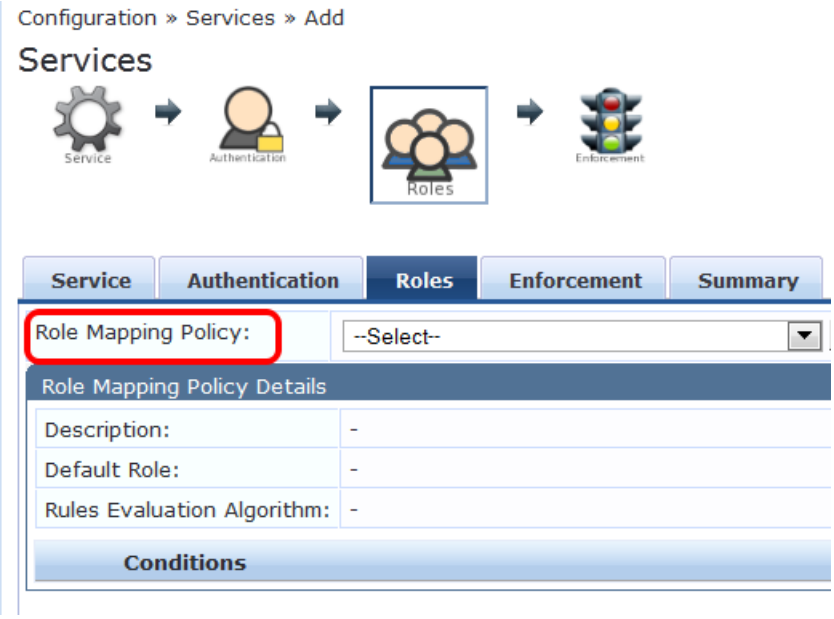
Figure 62 802.1X Authentication Methods and Sources



Click **Next**.

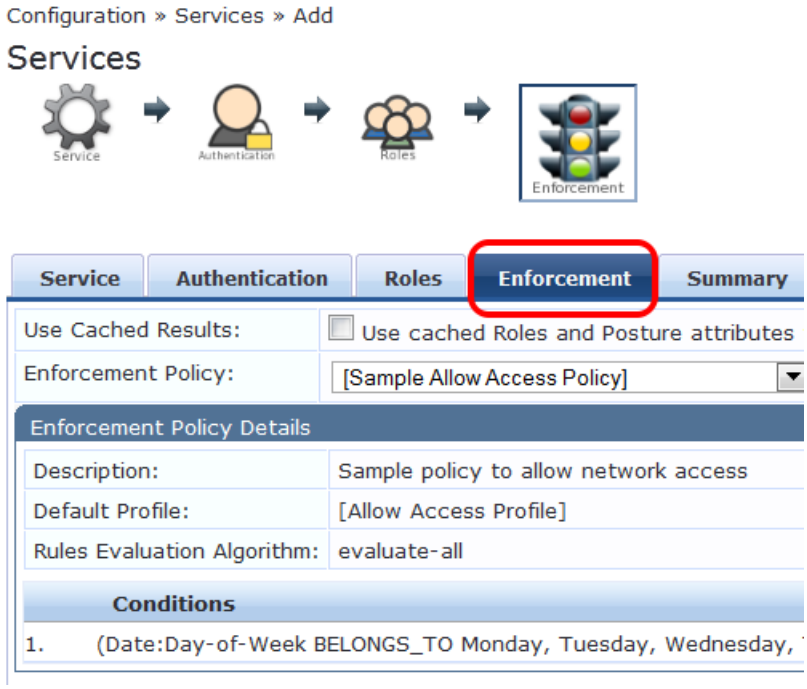
For initial testing, **Role mapping Policy** will not be used. Click **Next** on the **Roles** tab at the bottom right corner of the page to continue.

Figure 63 802.1X Role Mapping Policy



On the **Enforcement tab**, no changes are necessary. Click **Next** at the bottom right corner of the page to continue.

Figure 64 802.1X Enforcement configuration

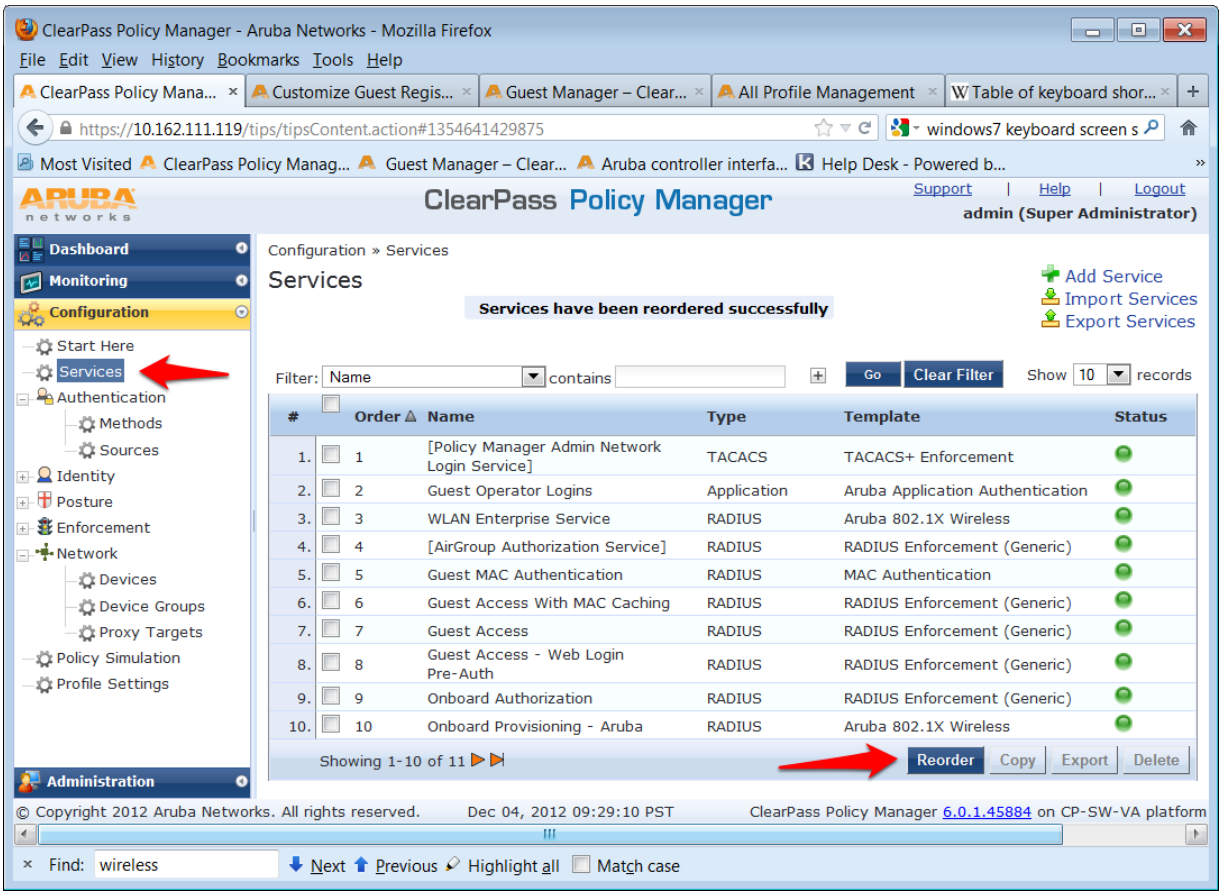


Review the summary and click **Save**.

Important! You must move the WLAN Enterprise Service above any generic RADIUS services that are not filtering via service rules. ClearPass 6.0.1 does not ship with any generic RADIUS services that have no service rules.

Navigate to **Configuration->Services** and select **Reorder** to move "WLAN Enterprise Service" above ANY generic RADIUS services that are not filtering via service rules.

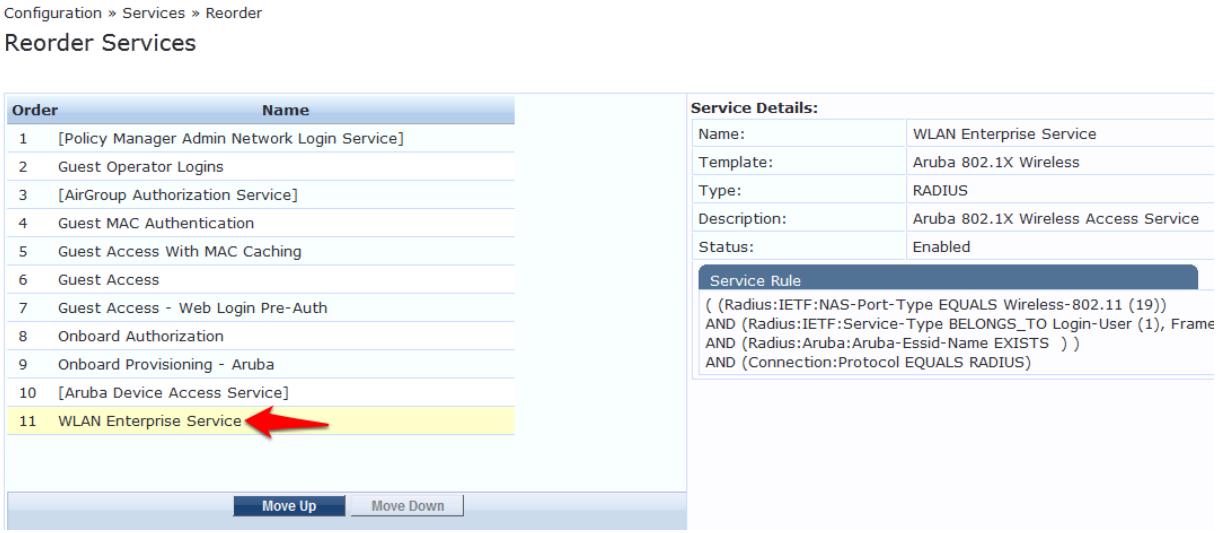
Figure 65 ClearPass Policy Manager Reorder menu



Select <WLAN Enterprise Service> and click on the **Move up** button to position above ANY generic RADIUS services that are not filtering via service rules.

Note: Do NOT move any services you create ABOVE the initial services that are installed with ClearPass Policy Manager. **IF** you add a service and move it ABOVE the initial services installed your newly created service **could** intercept RADIUS requests that "Guest Mac authentication", which is Mac caching, or Onboarding, and AirGroup.

Figure 66 Reorder Services 'Move Up' process

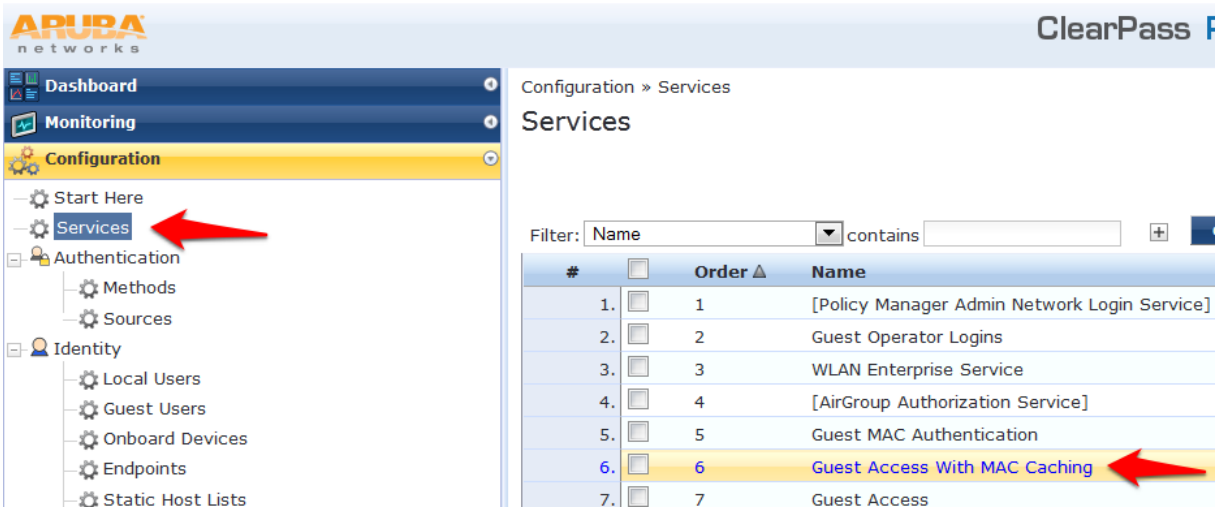


If you are running the beta version of 6.0, you may not have the Guest MAC Authentication services. If this is the case, please download the non-beta version of 6.0, as it will include these services by default.

Guest SSID Login service configuration

To configure the Guest SSID Login service, navigate to **Configuration->Services**. Click on **Guest Access With MAC Caching**.

Figure 67 Guest Access With MAC Caching



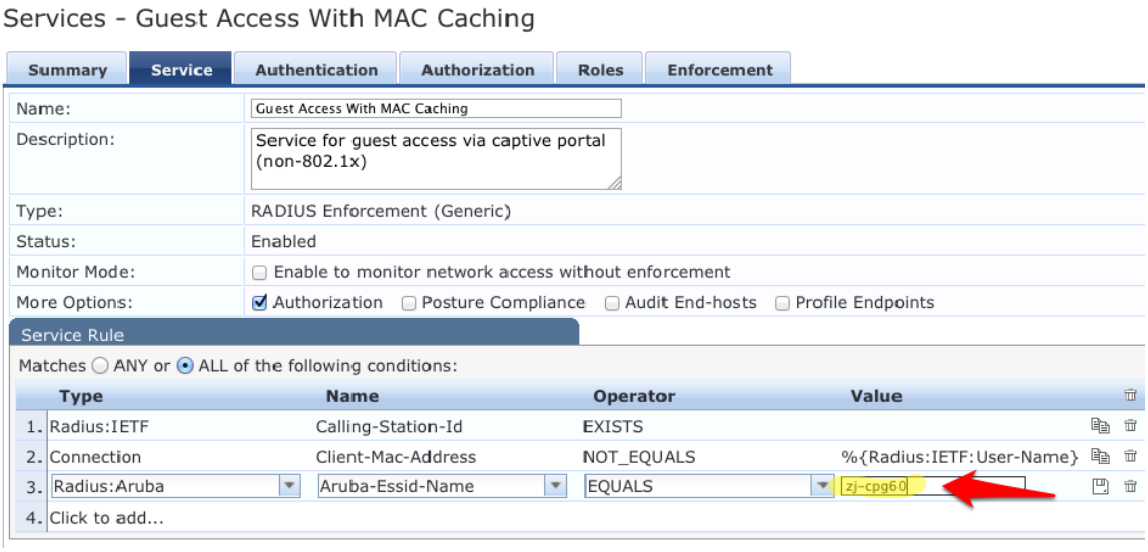
Click on the **Service tab**.

In order to get this service to respond to the guest SSID, click the **Radius:Aruba**, **Aruba-Essid-Name**, **EQUALS**, <Guest SSID Name> row under **Service Rule** sub-tab to modify.

Replace the <Guest SSID Name> with the actual guest SSID used on the controller.

In the example below, the guest SSID is: **zj-cpg60**

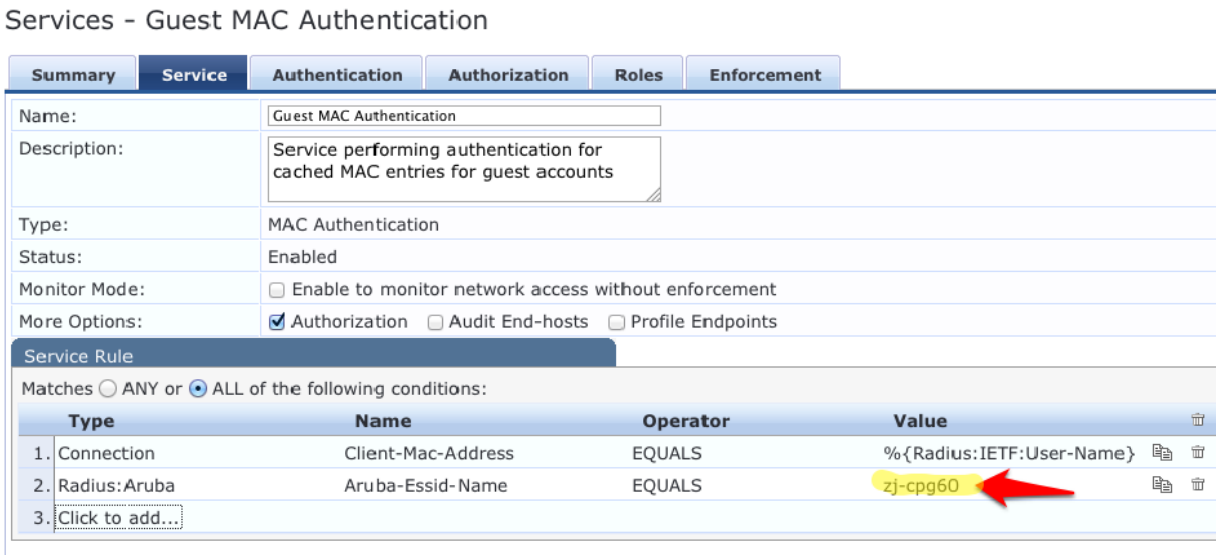
Figure 68 Service Rule Guest SSID conditions



Click **Save** to register the modifications to the service.

Repeat those steps for the **Guest MAC Authentication** service:

Figure 69 Service Rule Guest MAC Authentication conditions



The next step is to add a User Role. Even though no role mapping is in use in the WLAN Enterprise Service, a user role must be created for any local user account added into the Local User Repository.

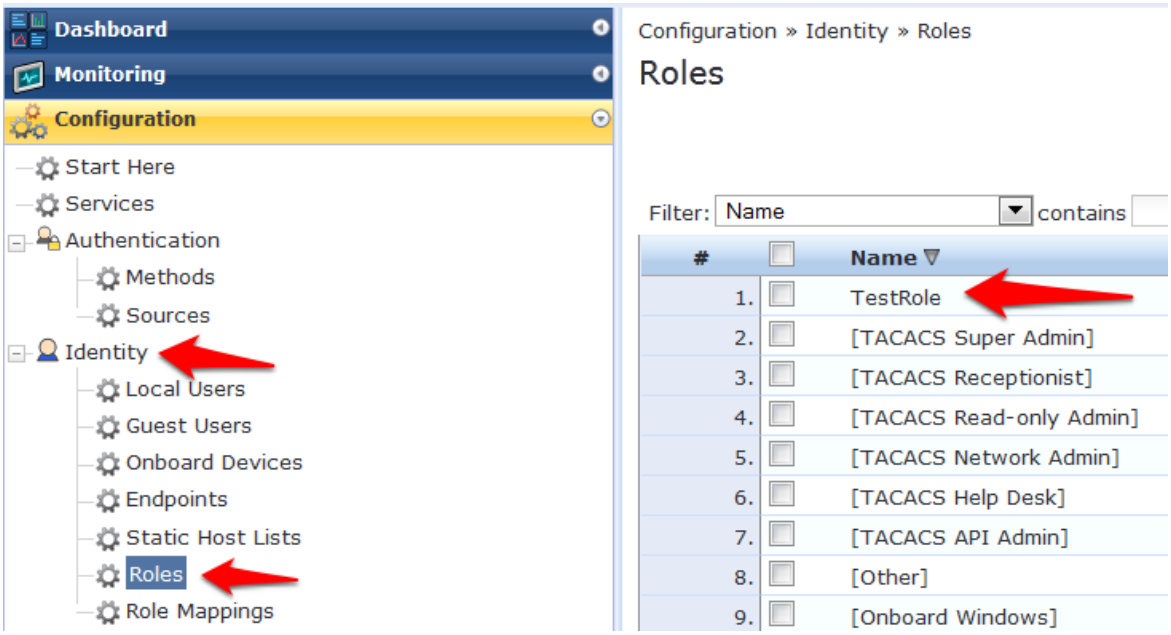
Navigate to **Configuration->Identity->Roles**

Click **Add Role** in the top right corner of the page.

Figure 70 Adding a Local User Repository Device

Enter <TestRole> as the name, and click **Save**.

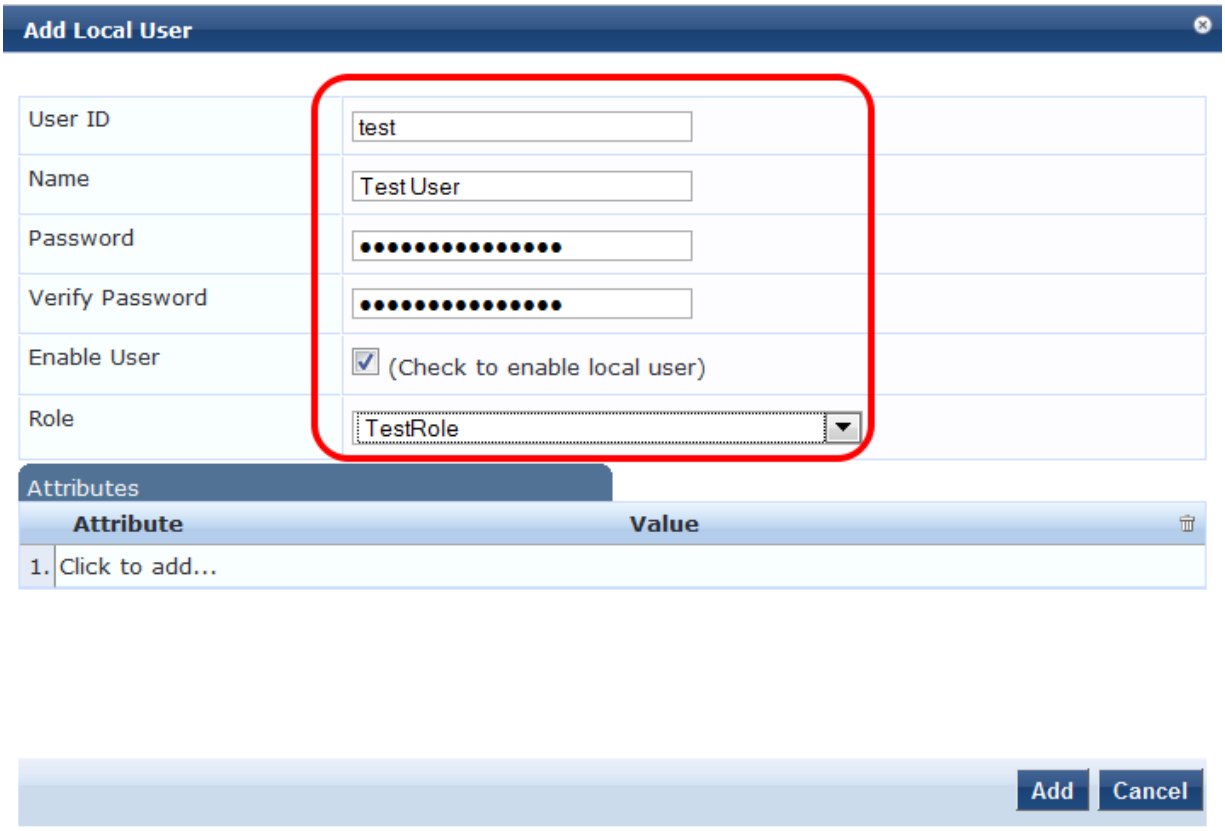
Figure 71 Adding a Identity Role



Navigate to **Configuration->Identity->Local Users**. Click **Add User**. Enter the following information:

- User ID: <test>
- Name: <Test User>
- Password: <test123>
- Verify Password: <test123>
- Enable User: check box <(Check to enable local user)>
- Role: select <TestRole> from the drop down menu

Figure 72 Guest SSID Local User conditions



Click **Add.**

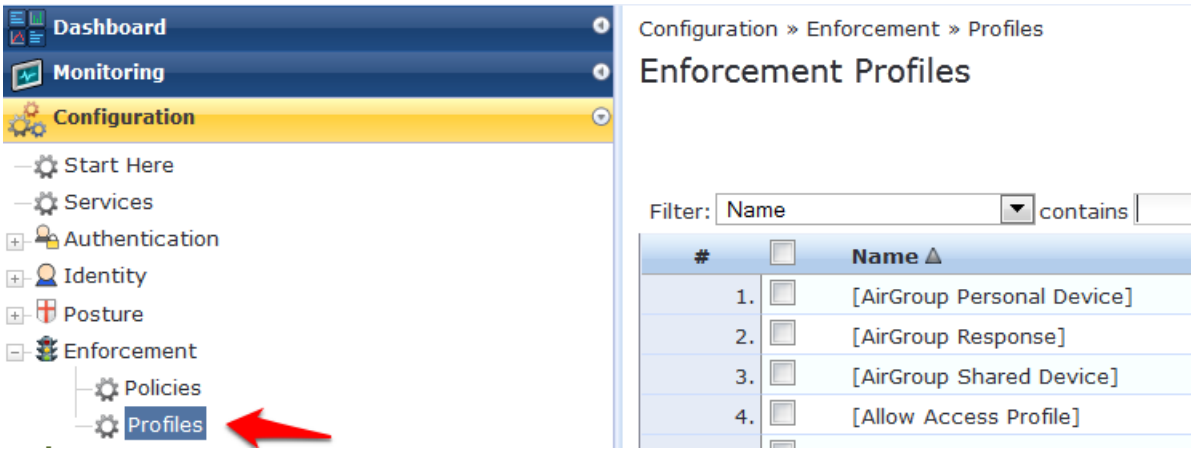
3. Testing the 802.1x and Guest SSID

At this point testing of the 802.1x and Guest SSID could commence. However, when 802.1x is tested with the Test User account, the user will authenticate but receive the guest role on the controller. This is because an Aruba User Role is not being passed back for the Test User. When the controller receives the RADIUS Accept from a successful authentication, the controller will give the client the default 802.1x role set in the AAA Profile.

In order to pass back an Aruba User Role, an Enforcement Profile must be built and the Sample Allow Access Policy must be modified to send this Enforcement Profile.

Navigate to **Configuration->Enforcement->Profiles**.

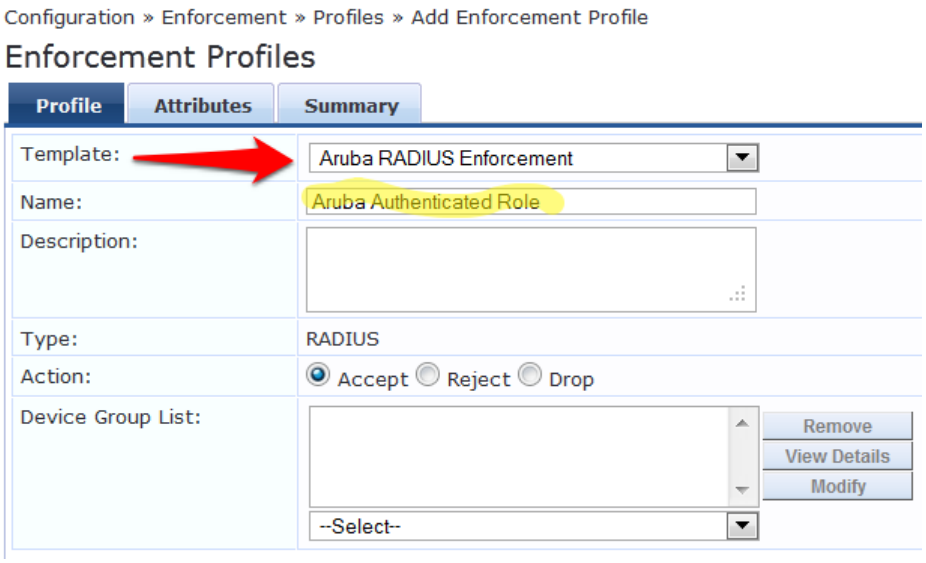
Figure 73 Configuring Enforcement Profiles



Click Add Enforcement **Profile** in the top right corner of the page.

Give it a name like <Aruba Authenticated Role>. Make sure the **Template** selected is **Aruba RADIUS Enforcement**:

Figure 74 Adding a new Enforcement Profile



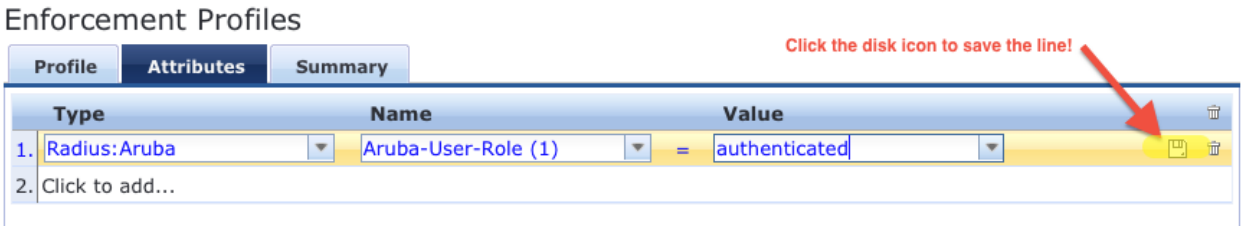
Click **Next**.

Click on "Enter role here" and enter <authenticated> in the **Value** field as the role to be passed back. Then

click on the disk icon to save the line.

Click **Save.**

Figure 75 Enforcement Profile Attributes



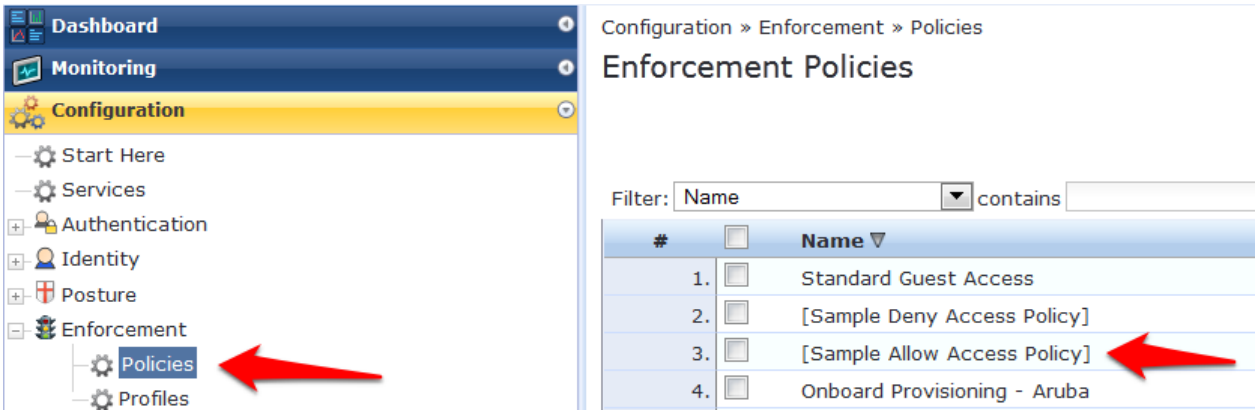
Tech Tip: Get used to clicking that disk icon. Whenever you edit a line like this, click the disk icon to save the line, or else your change may not get saved.

Click **Next**.

Click **Save**.

Navigate to **Configuration->Enforcement->Policies**. Click on the "Sample Allow Access Policy" to edit.

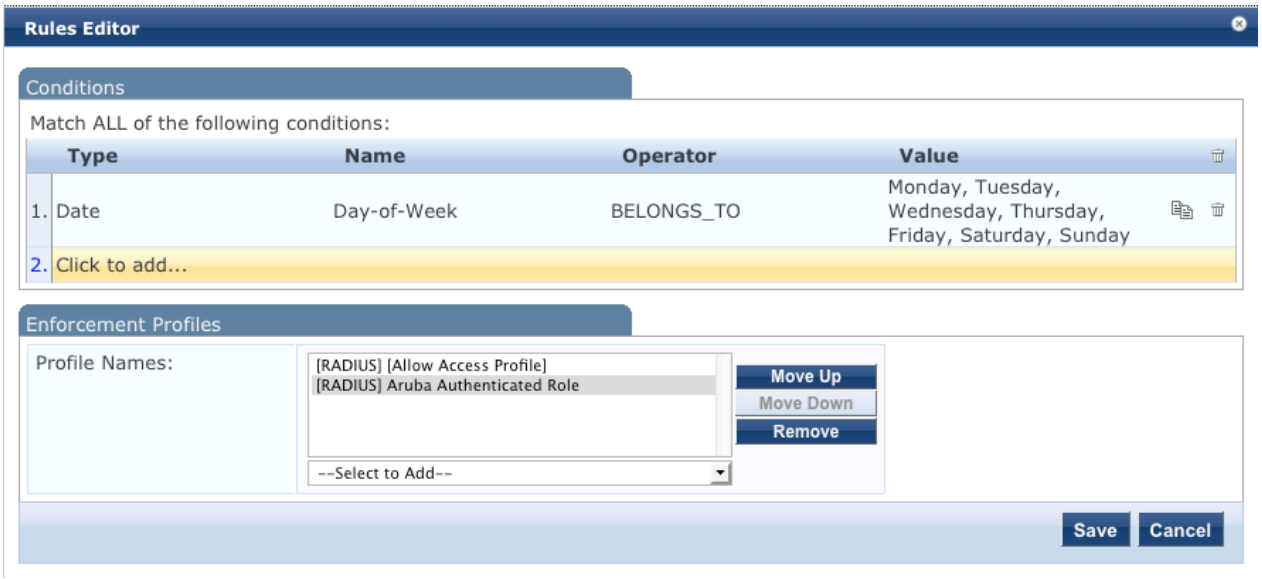
Figure 76 Enforcement Policies rule configuration



Click on the **Rules** tab. Click on the only Condition in the list to highlight it, and click **Edit Rule**.

Select the **Aruba Authenticated Profile** from the **-- Select to Add --** drop down menu to the list of Enforcement Profiles that will be executed when a user successfully authenticates:

Figure 77 Enforcement Authenticated Profile Rules Editor



Click **Save** in the **Rules Editor** window.

Click **Save** in the lower right corner of the page.

Step 9: Test the 802.1x SSID

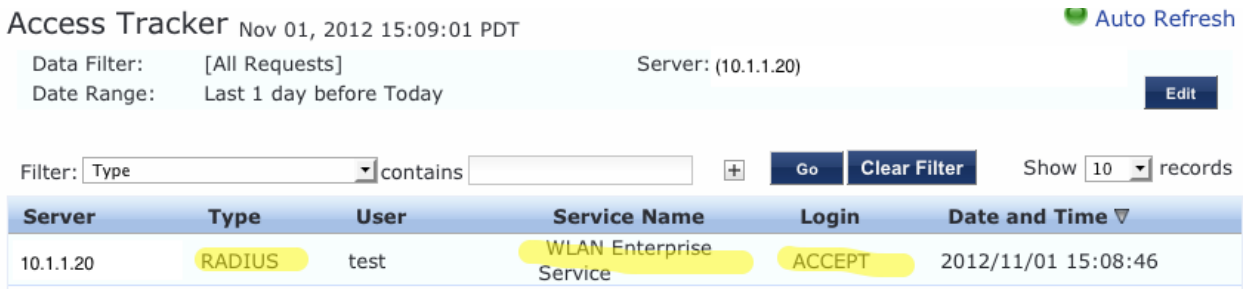
Connect to the 802.1x SSID, and login with the local user account (NOT the guest account) created in the ClearPass Policy Manager setup.

Navigate to **Monitoring->Live Monitoring->Access Tracker**.

Figure 78 Live Monitoring Access Tracker menu

A **RADIUS, ACCEPT** for the WLAN Enterprise Service server should be visible.

Figure 79 802.1x SSID RADIUS, ACCEPT WLAN Enterprise Service



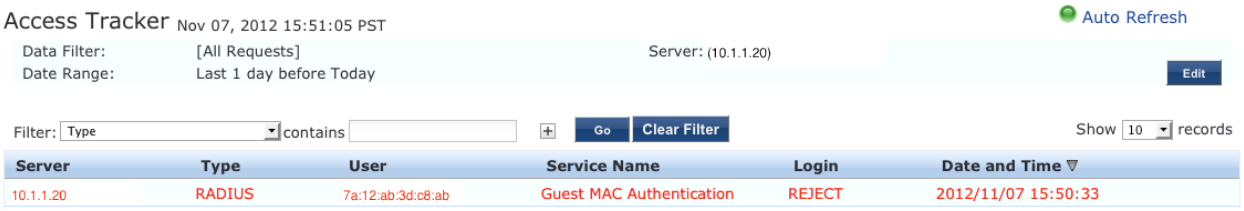
Step 10: Testing the Guest SSID

At this point, both the 802.1x SSID and the Guest SSID can be tested. Start by testing the Guest SSID.

In ClearPass Policy Manager navigate to **Monitoring->Live Monitoring->Access Tracker**.

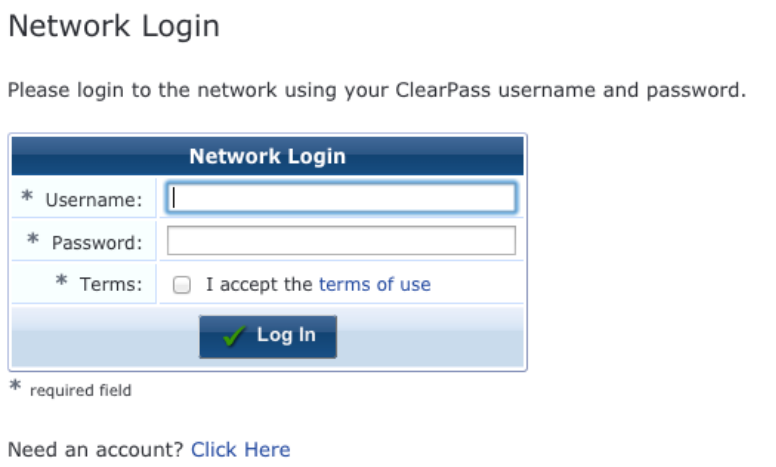
When your device first connects to the Guest SSID you will notice a MAC Auth REJECT. This is for the MAC Caching on the Guest SSID.

Figure 80 MAC Auth REJECT for the MAC Caching on the Guest SSID



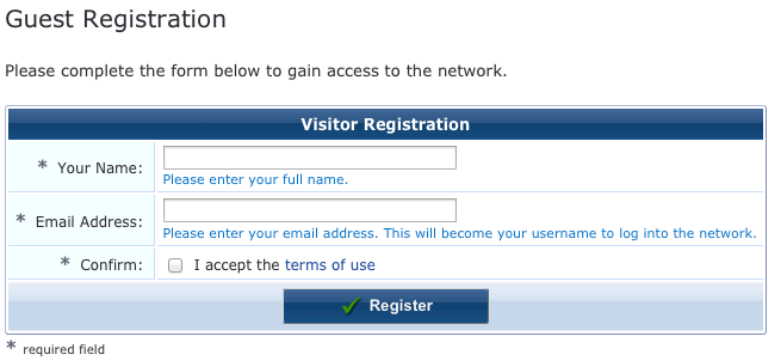
Open up a web browser on your device that just connected. It should redirect you to the Guest Login page. Select **Click Here** after **Need an account?**

Figure 81 ClearPass Guest Login



You will be then be presented with the Guest Account Creation page.

Figure 82 ClearPass Guest Registration



Enter the information (Email Address will become the guest username), check the box to accept the terms of use, and click Register.

You will then be presented with the Guest Registration Receipt that shows the guest username and password.

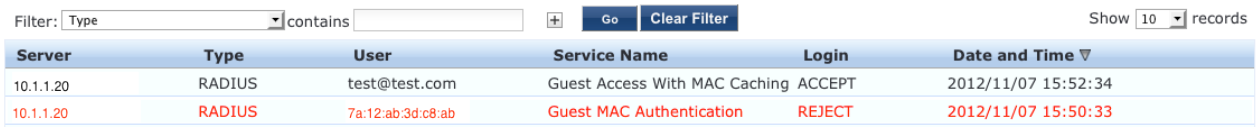
Figure 83 ClearPass Guest Registration Receipt

Clicking **Log In** button will automatically submit these credentials to the wireless controller's internal captive portal, which will create a RADIUS request with the Authentication Method PAP. This request will hit the Guest SSID Login Service that was created in ClearPass Policy Manager in the previous step.

After logging in on the test device, return to Access Tracker in ClearPass Policy Manager.

Notice the RADIUS ACCEPT entry for test@test.com:

Figure 84 RADIUS, ACCEPT configuration for a newly created 802.1x SSID Guest account



STOP! Wait 3 minutes before proceeding to the next step. For MAC Caching, the service queries the Insight Database. Information is pushed to the Insight Database every 3 minutes.

4. Testing the MAC Caching

The next steps test the MAC Caching.

1. SSH to your controller and run:

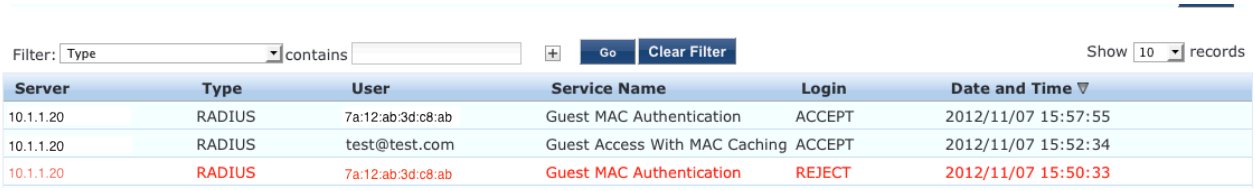
   `show user-table | include <test@test.com>`

   command where <test@test.com> is the 802.1x SSID guest user created, in order to find the MAC address of the test device.
2. Disable the wireless on the test device and run:

   `aaa user delete mac <00:aa:22:bb:44:cc>`

   command where <00:aa:22:bb:44:cc> is the MAC address returned from the show user-table command.
3. Re-enable the wireless on the test device. Now in Access Tracker you will see a successful MAC authentication.

Figure 85 Successful MAC authentication



5. Advanced Features

Controller Management Login Authentication with ClearPass Policy Manager

In ClearPass Policy Manager, navigate to **Configuration->Identity->Roles**.

Click **Add Roles**.

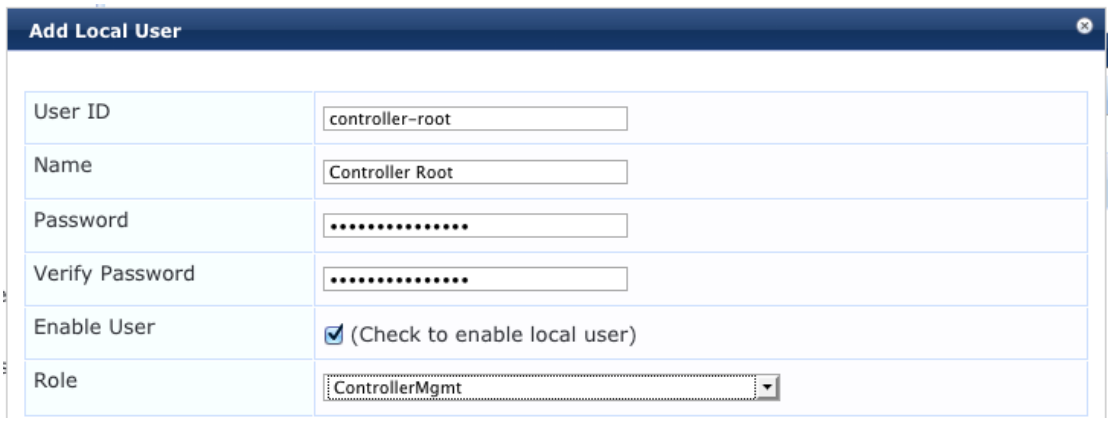
Create a new role called **ControllerMgmt**.

Navigate to **Configuration->Identity->Local Users**.

Click **Add User**.

Enter the information from Figure 86 Adding a Controller Management Local User, using whatever you want for the password (this will be the login and password for managing the controller).

Figure 86 Adding a Controller Management Local User



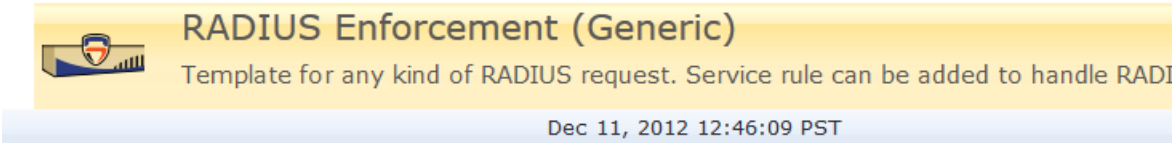
Click **Add** to save this user account.

RADIUS Enforcement (Generic) configuration

Navigate to **Configuration->Start Here**.

Scroll down the right main column and click on **RADIUS Enforcement (Generic)**.

Figure 87 RADIUS Enforcement (Generic) template

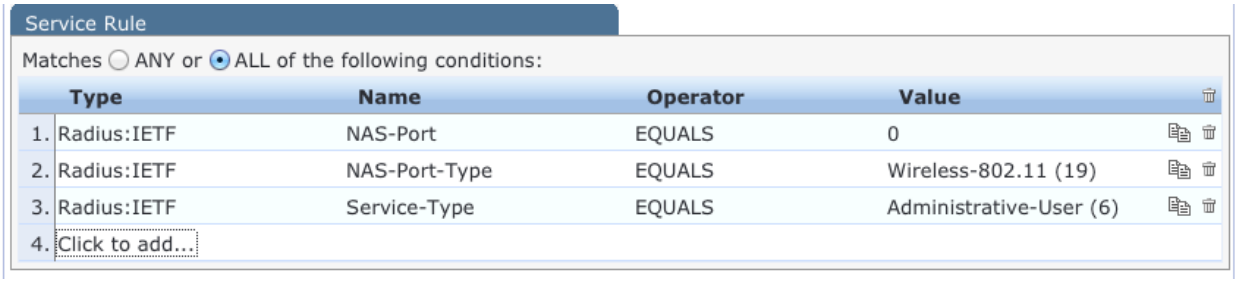


Service

Give the service a name such as <Aruba Controller Management Login>.

Add the Service Rules from Figure 88 RADIUS Enforcement (Generic) Service Rules configuration below for each Service Rule by selecting from each of their corresponding drop down arrow menu settings.

Figure 88 RADIUS Enforcement (Generic) Service Rules configuration



Remember to click the disk  at the end of each Service Rule in order to save the line configuration.

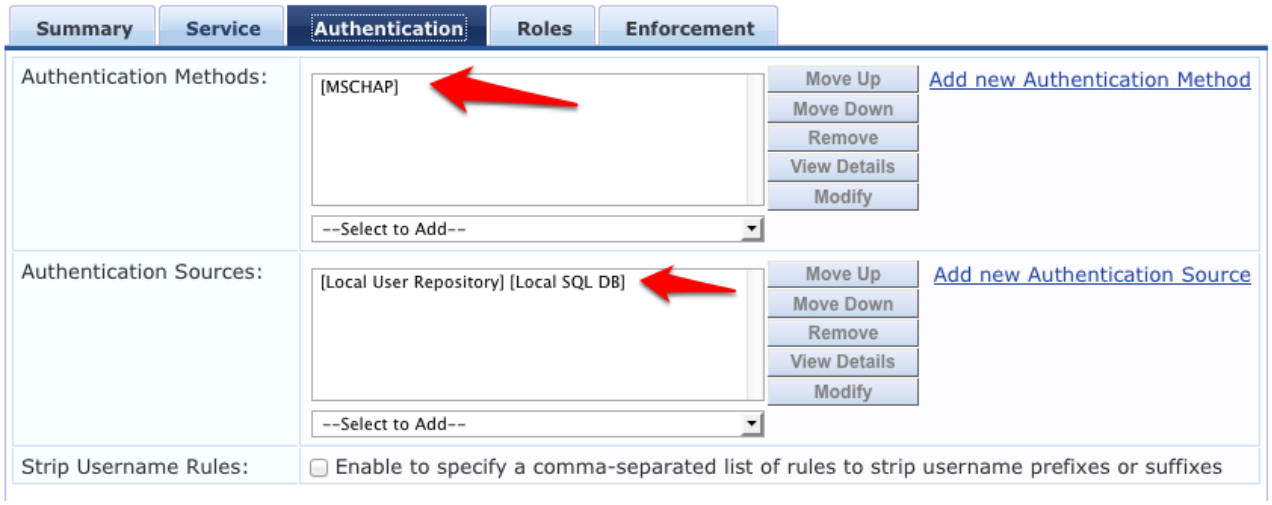
Click **Next**.

Authentication

For **Authentication Methods**, Click the **Select to Add** drop down arrow and choose **[MACHAP].**

For **Authentication Sources**, Click the **Select to Add** drop down arrow and choose **[Local User Repository] [Local SQL DB].**

Figure 89 RADIUS Enforcement (Generic) Authentication configuration



Click **Next**.

Roles

Tech Tip: You could use a **Role Mapping Policy**, but it is not required. It would be required if the Authentication source was Active Directory, in which case you would create a Role Mapping rule that would look for the following configuration:

Authorization: **SomeADServer:MemberOf:Contains:IT-Admins;**

Role Name: **ControllerMgmt**

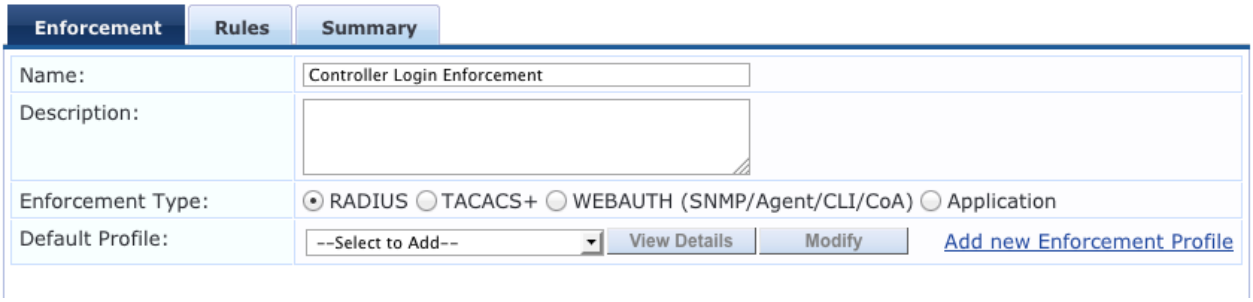
Click **Next.**

Enforcement

On the **Enforcement** tab, Click **Add new Enforcement Policy**.

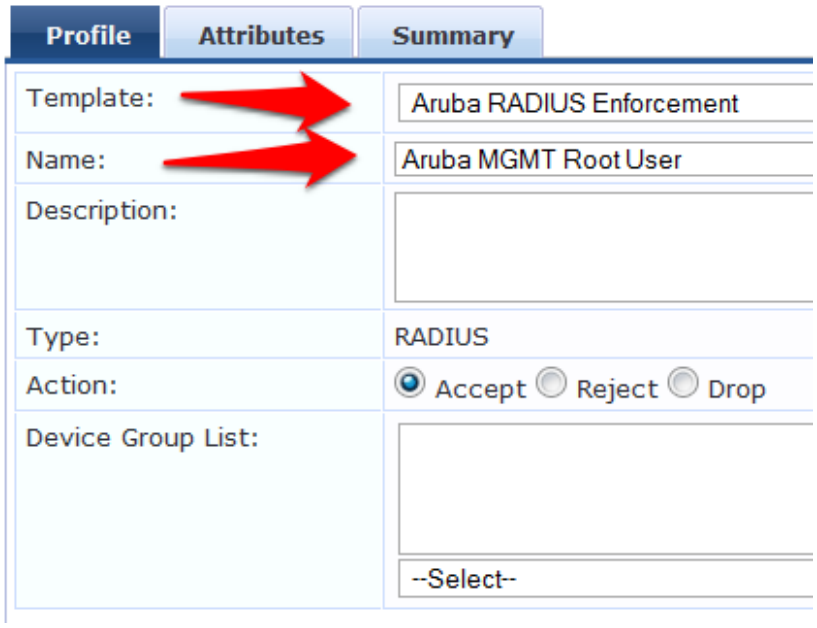
Give the new Enforcement Policy a name like <Controller Login Enforcement>.

Figure 90 RADIUS Enforcement (Generic) Enforcement configuration



Click **Add new Enforcement Profile**. Use the **Aruba RADIUS Enforcement** template. Enter a name for the Enforcement Profile such as <Aruba MGMT Root User>.

Figure 91 RADIUS Enforcement (Generic) Enforcement Profile Template and Name

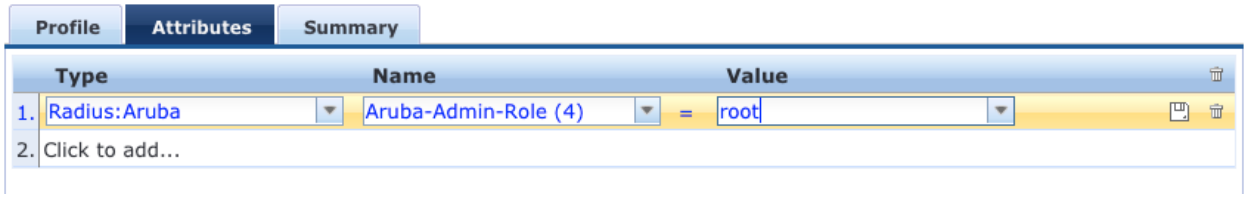


Click **Next**.

Add each Attribute from Figure 92 RADIUS Enforcement (Generic) Enforcement Attribute configuration below by selecting from each of their corresponding drop down arrow menu settings except for **Value.** Enter **root** in the **Value** field column.

Note: Aruba-User-Role is changed to **Aruba-Admin-Role**

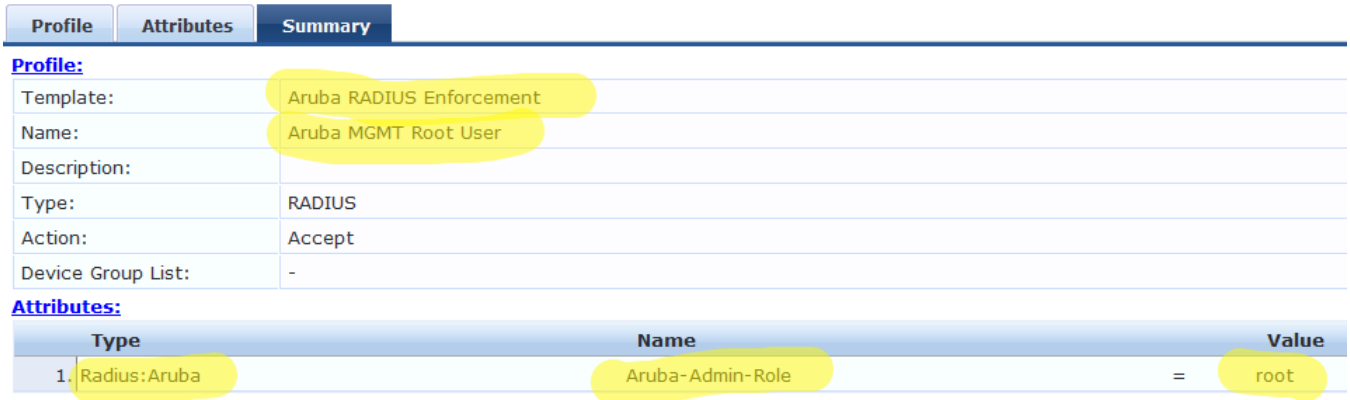
Figure 92 RADIUS Enforcement (Generic) Enforcement Attribute configuration



Remember to click the disk  at the end of each Attribute in order to save the line configuration.

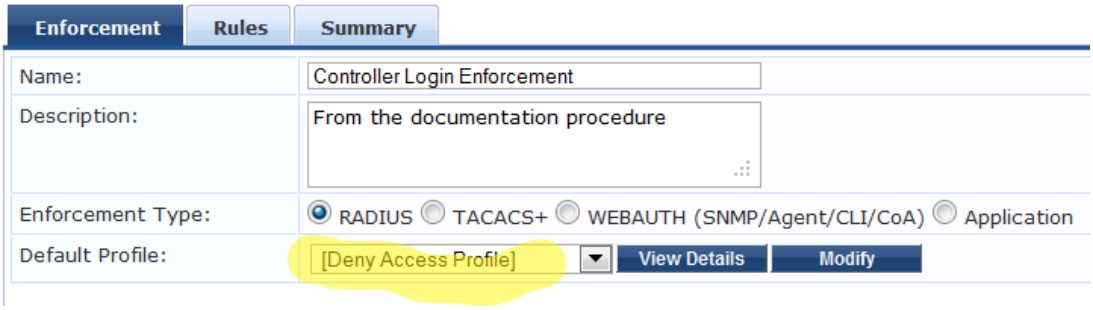
Click **Next**.

Figure 93 RADIUS Enforcement (Generic) Enforcement configuration Summary



Click **Save**. This will return you to the Enforcement Policy creation.

Change the **Default Profile** to **Deny Access Profile.**

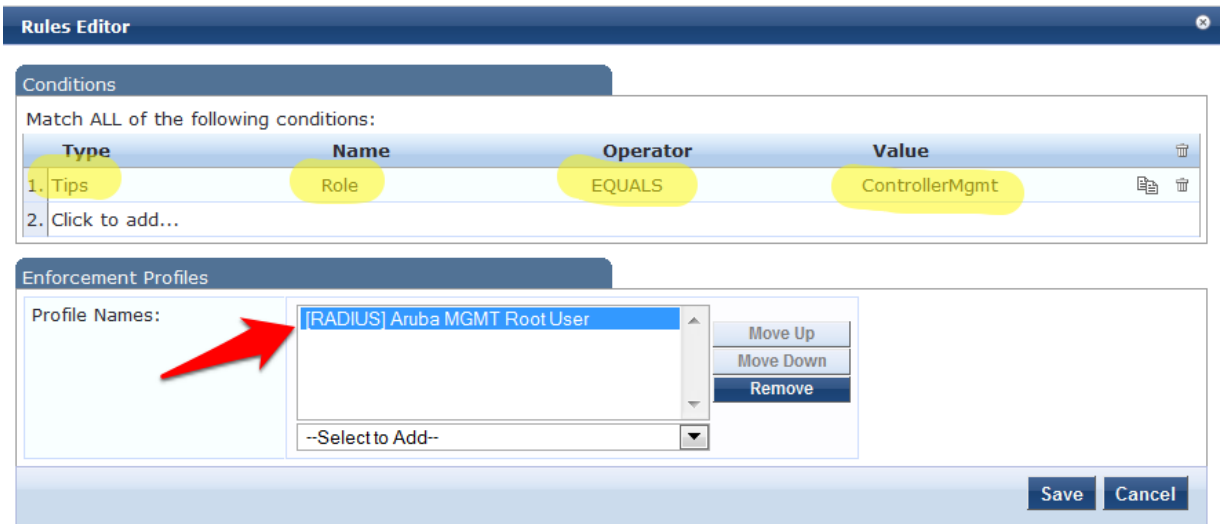


Click **Next**.

On the **Rules** tab, click **Add Rule**.

Enter the values from Figure 94 RADIUS Enforcement (Generic) Rule Conditions and Enforcement Profiles below for each Rules Editor Condition column by selecting their corresponding drop down arrow menu settings.

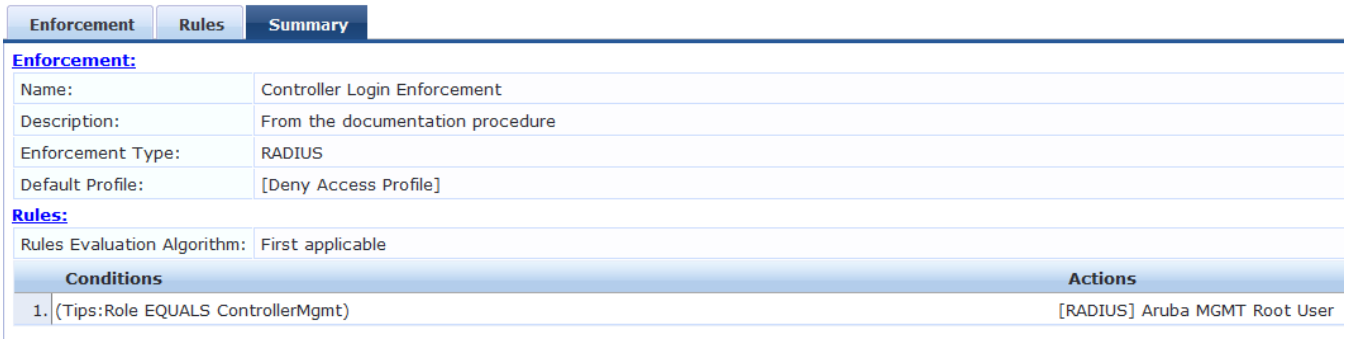
Figure 94 RADIUS Enforcement (Generic) Rule Conditions and Enforcement Profiles



Click **Save**.

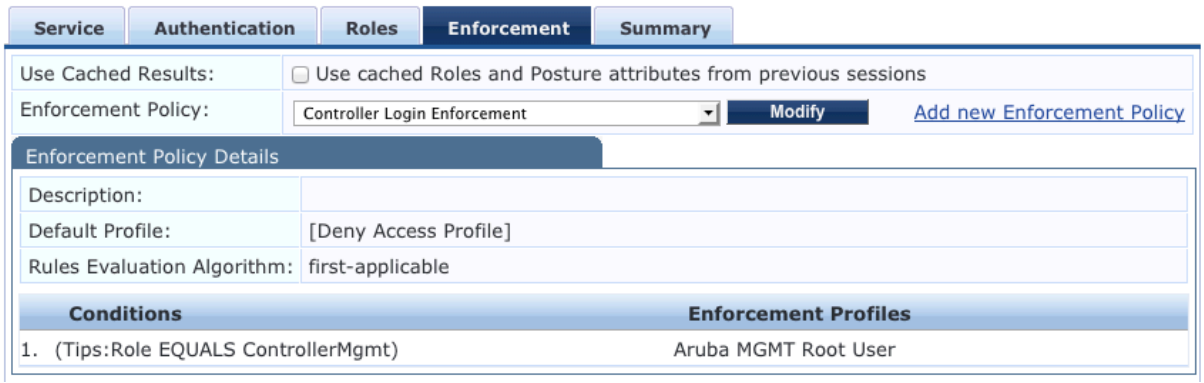
Click **Next**.

Figure 95 RADIUS Enforcement (Generic) Enforcement Rules Profile Summary



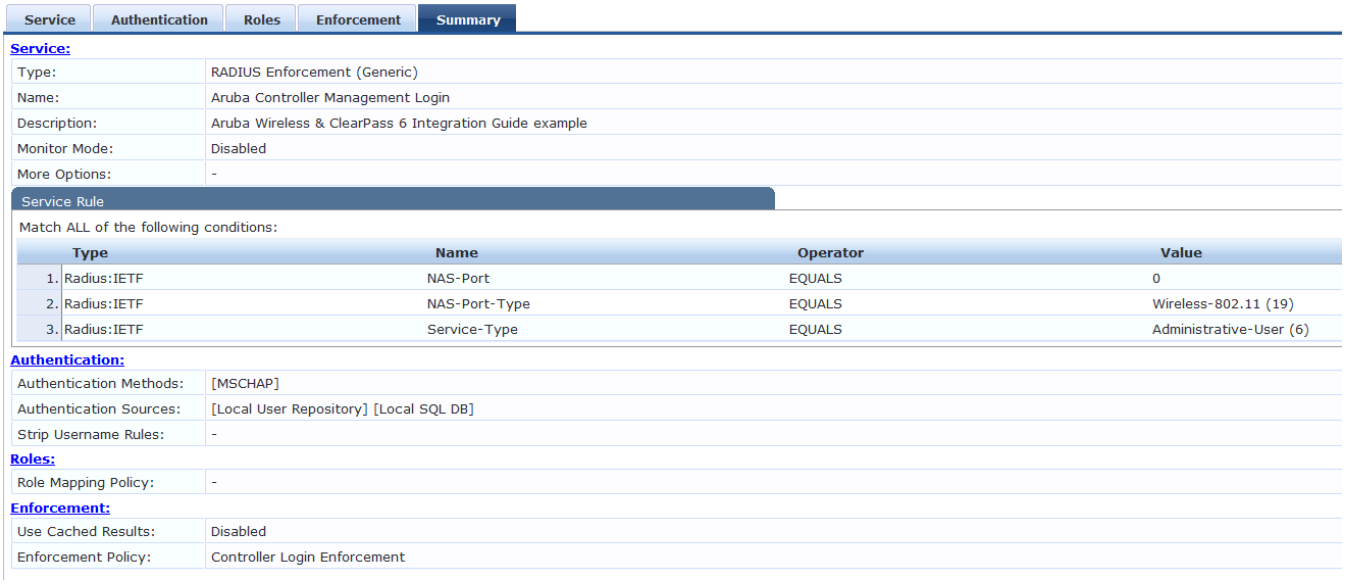
Click **Save** to log the Enforcement Policy.

The newly created Enforcement Policy should automatically be selected for the Service in the Service creation flow.



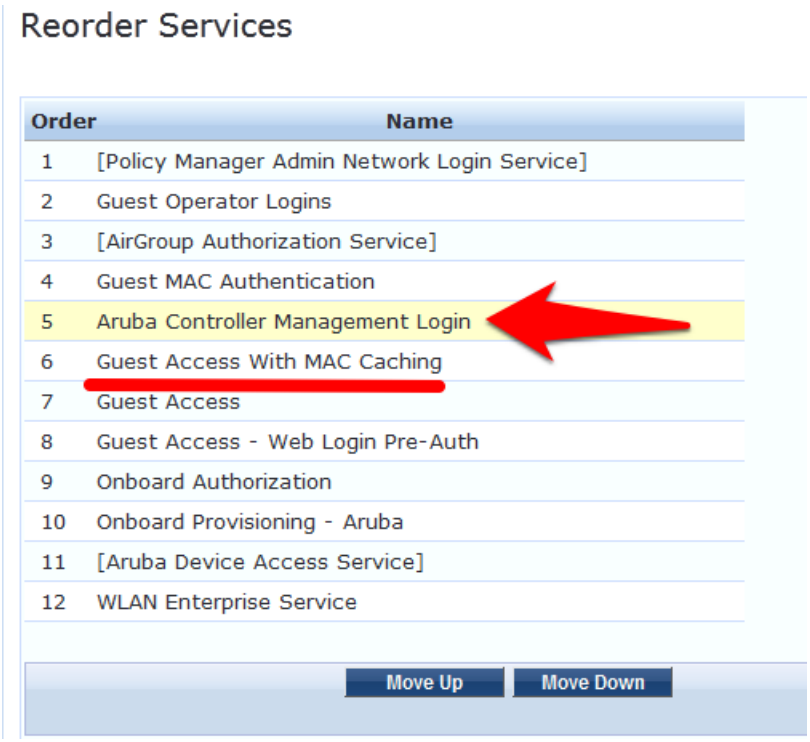
Click **Next**.

Figure 96 RADIUS Enforcement (Generic) Enforcement Policy Service Creation Flow



Click **Save**.

Note: Reorder the service so that it is **above** the **Guest Access With MAC Caching** service.



Click **Save**.

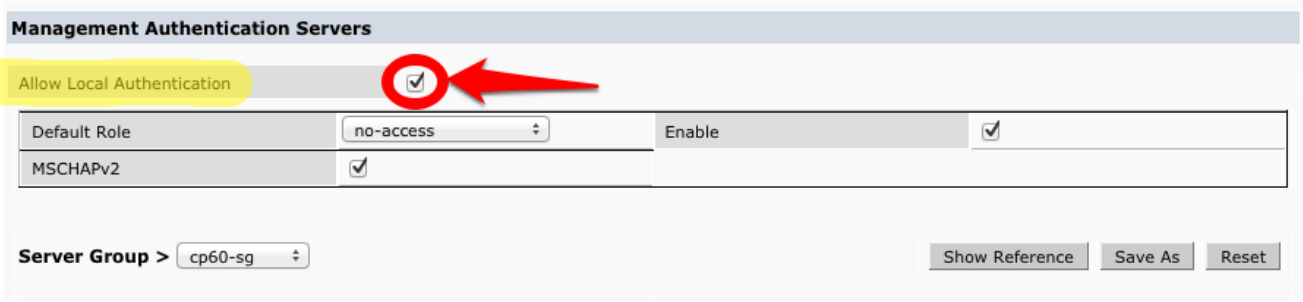
Management Authentication Servers

Login to the Aruba Controller Interface

Navigate to **Configuration->Management->Administration**.

1. Change **Default Role** to **no-access.**
2. Check the checkbox for **Enable**.

3. Check the checkbox for **MSCHAPv2**.
4. Change the **Server Group** to the ClearPass Policy Manager server group created earlier in this document.

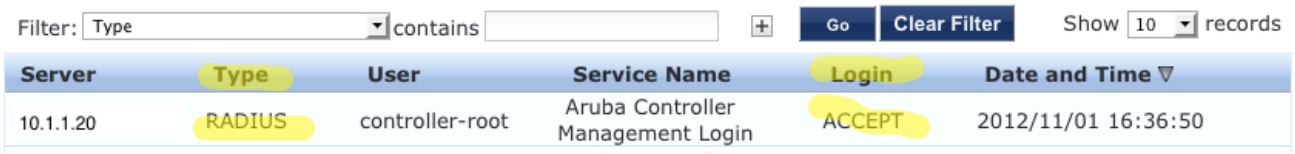


Important! Leave the **Allow Local Authentication** box checked. If this box is unchecked and there is a problem with the Management Authentication configuration, you **will not** be able to login to the controller if **Allow Local Authentication** is unchecked.

Click **Appl**y to save these settings.

Logout of the controller and test login with the controller-root test user created earlier.

In Access Tracker you should see the **Type** = **RADIUS** and **Login** = **ACCEPT** for the controller-root test user:



6. Troubleshooting

Problem:

MAC Caching is not working.

Solution:

Check the Endpoints Repository, navigate to **Configuration->Identity->Endpoints** for the device in question. Click on the device and verify that the device status is set to Known. If it is not, verify that the correct controller-ip vlan has been set on the wireless controller.

Problem:

During creation of Enforcement Policy, an error appears when trying to save: Name contains special characters…

Solution:

Creation of the Enforcement Policy has timed out. Click Cancel, then create the Enforcement Policy again.